

SECTION 01000

DESIGN AND CONSTRUCTION SCHEDULE

PART

1 - GENERAL

1.1 SCHEDULE

Commence, prosecute, and complete the work under this contract in accordance with the following schedule and Section 00800 SPECIAL CONTRACT REQUIREMENT clauses COMMENCEMENT, PROSECUTION AND COMPLETION OF WORK and LIQUIDATED DAMAGES. See Section 01005, paragraph "SUBMISSION OF CONSTRUCTION DRAWINGS, SPECIFICATIONS, AND DESIGN ANALYSIS," concerning submission of drawings and Section 01000 paragraph, "APPROVAL PRIOR TO CONSTRUCTION," concerning start of construction:

SCHEDULE			
<u>Item of Work</u>	<u>Commencement of Work (calendar days)</u>	<u>Completion of Work (calendar days)</u>	<u>Liquidated Damages per calendar day</u>
(1) Completion of 50% Design	Within 10 calendar days after receipt of Notice to Proceed	30 calendar days after receipt of Notice to Proceed	---
(2) Completion of Final (100%) Design	---	30 calendar days after approval of (1) above	---
(3) Resubmittal of Final (100%) Design (incorporating final review comments)	---	14 calendar days after receipt of final comments	---
(4) Completion of all work except Relocation of Denver Resident Office trailers and Establishment of Turf	---	284 calendar days after receipt of Contract Notice To Proceed	\$ 790.00 ¹

SCHEDULE (cont)

<u>Item of Work</u>	<u>Commencement of Work (calendar days)</u>	<u>Completion of Work (calendar days)</u>	<u>Liquidated Damages per calendar day</u>
(5) Relocation of Denver Resident Office Trailers	Within 10 days of substantial completion of Item (4).	60	\$ 790.00 ¹
(6) Establishment of Turf	*	*	\$ 53.00

NOTE: For construction planning purposes Government review time for Items of Work (1) and (2) will be 30 days and for Item of Work (3) will be 7 days.

¹Liquidated damages are not accumulative.

*Establishment of Turf

Planting and maintenance for turfing shall be in accordance with the Section for TURFING. In case the Contracting Officer determines that seeding, sodding, and planting, and the specified maintenance thereof, is not feasible during the planting dates specified by the Contractor, such work shall then be accomplished during the first seeding, sodding, or planting period, and the specified maintenance period, following the substantial completion date. No payment will be made for establishment of turf until all requirements of the section are adequately performed and accepted, as determined by the Contracting Officer.

1.1.1 Testing of Heating and Air-Conditioning Systems

The times stated for completion do not include testing of heating and air-conditioning systems. Final testing of heating and air-conditioning systems will be accomplished during the appropriate heating/cooling season as determined by the Contracting Officer.

1.2 APPROVAL PRIOR TO CONSTRUCTION

Review and acceptance of the final drawings and specifications shall be obtained from the Contracting Officer before start of construction. However, the Contracting Officer may allow the Contractor to proceed with the site development while final drawings and specifications are completed. The responsibility for a totally integrated design in accordance with the contract will remain with the Contractor and this authorization to commence will in no way mitigate against that responsibility.

1.3 WORK RESTRICTIONS

1.3.1 Identification of Employees

See Sections 00800 SPECIAL CONTRACT REQUIREMENTS and 01500 SECURITY/WORK AREAS/COORDINATION REQUIREMENTS.

1.4 UTILITIES

1.4.1 Payment for Utility Services

See Section 00800 SPECIAL CONTRACT REQUIREMENTS.

1.4.2 Outages

The Contractor shall coordinate all requests for utility outages with the Contracting Officer in writing 14 working days prior to date of requested outage.

(1) Water, gas, steam, and sewer outages shall be held to a maximum duration of 4 hours unless otherwise approved in writing.

(2) Electrical outages shall have a maximum duration of 4 hours.

1.4.3 Scheduling of Interruptions To Utility Systems and ADF Operations

Special attention to the scheduling and performance of work that includes connections to existing utility and operating systems is required under this contract. The following restrictions apply. Each item of work that includes a potential shutdown or interruption to the normal service or operations of any system or item of equipment listed below or any other existing operating systems that may be affected by the work shall be identified in the progress schedule.

1.4.4 Interruptability of Services

The utility services at the Aerospace Data Facility (ADF) compound are divided into two categories, those which are non-interruptable and those for which limited interruption is allowed.

1.4.4.1 Non-Interruptable Services

Services for which no interruption is allowed include the following.

- Fire Protection Water
- Communications Systems
- Security Systems
- Fiber Optic Systems

These services or systems shall remain fully operational at all times.

1.4.4.2 Limited Interruption Services

Services for which limited interruption is allowed include the following:

- 5 kV Switchgear in the Power Plant
- Natural Gas System

Domestic Water
Sanitary Sewer

Whenever any of these, or other operating systems, are required to be taken out of service during the course of construction, the Contractor shall provide an interim source of service unless the use of an existing standby or redundant source is approved or the interruption is for the purpose of switching to new service lines. Only two interruptions will be permitted per item for switches to and from interim sources, or one interruption for switch to new service. For connections to new services, the new lines shall be installed and readied for operation prior to switch over so the interruption can be kept to a minimum.

All service interruptions or outages must be scheduled with the Contracting Officer and ADF Director of Facility Engineering and shall be planned such that the length of the outage time is minimized. In his request for a service interruption, the Contractor shall submit to the Contracting Officer for approval a written plan detailing the procedures for disconnection and re-establishing utility services for each particular outage. This plan must include potential opportunities for fallback to original service during the process if any exist.

1.4.5 Scheduling Service Interruptions

The Contractor shall provide a proposed service interruption schedule within 30 days of award of contract. The schedule shall indicate all required interruptions, the proposed dates of all interruption, and the number of crews/personnel to be used during each interruption. Only interruptions to those services identified as "Limited Interruption Services" and other utilities and equipment not listed that may affect ongoing operations will be allowed. Unauthorized utility interruptions will not be tolerated.

1.4.5.1 Schedule Requirement

The Contractor shall give written notice of all proposed service interruptions to the ADF Director of Facility Engineering at least 14 calendar days prior to the proposed date of interruption. Interruptions include switching interruptions with provisions for interim service. Interruptions shall not exceed the two switching interruptions unless otherwise approved by the ADF Director of Facility Engineering. Requests shall include as a minimum the following information:

- Utility circuit type and utility services affected.
- Reason shutdown is required.
- Work to be accomplished during the shutdown.
- Proposed shutdown date and time.
- Duration of the shutdown.
- Fallback plan to return to original service at points during the interruption, where they may exist.

Service interruptions will be permitted only on Saturdays, Sundays, and holidays, and in some cases after 1700 on weekdays and will be limited to a

maximum of twelve hours between 1600 and 0800 in any approved 24-hour period.

Natural gas interruptions shall be limited to warm weather periods with outage permitted only for tie-over connections. Domestic water interruptions will be allowed only for portions of the loop that have been isolated. All fire protection water connections must remain in service at all times. Sanitary sewer interruptions shall be limited to weekends and shall not exceed 4 hours.

1.4.5.2 Contractor Notification

The Contractor may be notified as late as 24 hours for power and 7 calendar days for all other utilities prior to the proposed service interruption date as to whether or not the interruption will be permitted. Scheduled interruptions are subject to cancellation by Contracting Officer's Representative without prior notification. Service interruptions may be cancelled at anytime prior to starting the work associated with the interruption.

1.4.5.3 Work Requirements

The materials and equipment required for the work to be accomplished during the interruption shall be complete and available on the job for review by the Contracting Officer three days prior to the shutdown. If the Contractor is not adequately prepared, the interruption will be cancelled and rescheduled. If rescheduling is required, it shall be at the Contractor's expense. Rescheduling requires 14 calendar days notice as if it were a new request. The rescheduling shall not affect the other planned interruptions, unless the first interruption is required in critical sequence to the second.

1.5 DIGGING PERMITS AND ROAD CLOSINGS

The Contractor will be responsible for securing digging permits for the project. The Contractor will be provided the blank AF Form 103 and will be responsible for signatures and coordination with communications, fire department, plumbing shop, electrical shop, grounds shop, environmental, safety, security police, base operations, and any affected public utility.

1.5.1 Road Closings

Roads shall only be closed one lane at a time and vehicular traffic shall be allowed to pass through the construction area. Work on or near roadways shall be flagged in accordance with the safety requirements in Safety and Health Requirements Manual EM 385-1-1, which forms a part of these specifications. Work located along the alert force route shall not cause blockage and the Contractor shall maintain unobstructed access for alert force traffic at all times.

1.5.2 Work Within The ADF Security Compound

The Contractor shall allow 14 calendar days from date of written application to receive permission to dig and to close roads.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

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SECTION 01005

DESIGN REQUIREMENTS AFTER AWARD

PART

1 GENERAL

1

1.1 REFERENCES

The publications listed below form a part of this specification.

THE CONSTRUCTION SPECIFICATIONS INSTITUTE (CSI)

CSI Masterformat

Master List of Section Titles and Numbers

OMAHA DISTRICT CADD STANDARDS MANUAL

1.2 DESIGN COMPLETION SCHEDULE

See Section 01000 DESIGN AND CONSTRUCTION SCHEDULE for the Completion Schedule for the entire work.

1.3 SUBMISSION OF CONSTRUCTION DRAWINGS, SPECIFICATIONS AND DESIGN ANALYSES

1.3.1 Deviations

Deviations from the RFP technical requirements shall be identified each design submittal's letter of transmittal. Deviations from the RFP technical requirements will be considered and approved by the Contracting Officer if the changes results in a significant improvement to the project or they exceed the minimum RFP technical requirements.

1.3.2 Field Verification

The Contractor shall verify field conditions which are significant to design by field inspection, researching and obtaining all necessary existing facility as-built drawings and reproducing them for his\her own use as necessary, and discussing status with knowledgeable personnel. The information shall be reflected in the design documents.

1.3.3 Number of Copies

The Contractor shall submit, in accordance with paragraph SCHEDULE of Section 01000 DESIGN AND CONSTRUCTION SCHEDULE, 27 copies of the construction drawings and specifications, design analyses, equipment schedules, and all other submittal data, which shall be in accordance with the requirements of the RFP, all current revisions, the Contractor's proposal, and all other terms and conditions affecting contract award. Upon final approval, the Contractor shall within 7 calendar days furnish 8 copies (including one reproducible) of the approved drawings, design analysis, and specifications. Proposed modifications shall be submitted in 5 copies. Final modifications, after negotiations, shall be submitted in 2 copies (including one reproducible).

1.3.4 Final Construction Documents

Provide documents complete, accurate and explicit enough to show compliance with the RFP requirements and to permit construction. Drawings and specifications illustrating systems proposed to meet the requirements of the RFP performance specifications shall reflect proper detailing for each such system to assure appropriate use, proper fit, compatibility of components and coordination with the design analysis and specifications required by this section. Coordinate drawings to ensure there are no conflicts between design disciplines and between drawings and specifications.

1.3.4.1 Computer Aided Design and Drafting (CADD) Systems

All design submittals, including intermediate (50 percent/100 percent) drawings, final design (100 percent) drawings, and record drawings after the completion of the project, shall be submitted in AutoCAD R12 on 250 MB tape along with hard copies of the drawings, specifications and design analysis. Furnishing the CADD drawings in any other media (i.e. tape, Bernoulli disk) shall be approved in advanced by the Contracting Officer. RFP drawings were drawn on Intergraph 5.1. One set of the CADD disks furnished by the Contractor shall be compatible with AutoCAD R12. Format shall conform to the Omaha District CADD Standards and the Omaha District CADD Design File and Sheet Naming Conventions; both are available upon request (after Contract Award). AIA layering guidelines shall be used unless otherwise specified. The engineering survey and floor plan will be furnished to the Contractor in .dwg (AutoCADD) format.

1.3.4.2 Size of Drawings

Size of drawings shall be full size, 594 mm by 841 mm (23.7 by 33.6 inches) trim to trim with borders and title conforming to the Buckley ANGB standard drawing layout, and half size. Recommended overall sheet size for full size drawings is 785 mm by 891 mm (24 by 36 inches). Furnish both full size and half size for review and final construction drawings.

1.3.4.3 Drawings Sequence

Arrange drawings by design discipline in accordance with Omaha District CADD Standards Manual.

1.3.4.4 Drawings Required

As a minimum, the construction drawings shall consist of the following:

- a. Title Sheet, Index of Drawings (each technical discipline shall have a separate drawing legend sheet located in front of each respective section), Legend and Abbreviations and Soil Borings
- b. Civil Drawings
- c. Utility Drawings (Water Supply, Wastewater, Gas, and Electrical)

- d. Architectural Drawings
- e. Interior Design Drawings
- f. Structural Drawings
- g. Mechanical Drawings
- h. Electrical Drawings (Including security and fire alarm)
- i. Lightning Protection
- j. Fire Protection Drawings

1.3.4.5 Specifications and Design Analysis

Specifications and design analyses shall be provided in hard copy and on 87.5 mm (3.5 inch) 1.44 mB IBM PC compatible floppy disks, Word Perfect 5.1 format. The Division 1 sections included in the RFP shall be reprinted in the final 100 percent Construction specifications. Specifications and design analyses shall be bound separately in 3-ring binders. Each set of documents shall have its own Table of Contents.

1.3.5 Design Documents

Design documents include construction drawings, specifications, and design analysis for categories such as, but not limited to, architectural, structural, mechanical, electrical, grading, drainage, paving, and outside utility services. Specifications shall be in sufficient detail to fully describe and demonstrate the quality of materials, the installation and performance of equipment, and the quality of workmanship. Technical specifications (Divisions 2 through 16) shall conform to the Construction Specifications Institute (CSI) 16-Division 3-Part format, follow the CSI's section numbering system defined in CSI Masterformat, and utilize either construction industry standard guide specifications, such as CSI's Spectext or the American Institute of Architects' Masterspec, or the Corps of Engineers Guide Specifications. Specifications shall include the mandatory specifications specified in Attachment 3. Division 1 specifications shall consist of the Division 1 sections included in this RFP and any additional ones deemed required by the Contractor. Detailing and installation of all equipment and materials shall comply with manufacturers recommendations. Construction drawings and specifications shall not make reference to RFP requirements. The design analyses shall be for each discipline of work and shall include all features with the necessary calculations, tables, methods, and sources used in determining equipment and material sizes and capacities, and shall provide sufficient information to support the design.

1.3.6 Design Reviews

Design reviews shall be held in the Corps of Engineers' Denver Resident Office at Buckley ANG Base, or at the Contractor's office, at the Aerospace Data Facility's (ADF) discretion, at the 50 percent and 100 percent

completion stages of the design stage in accordance with the schedule in Section 01000 CONSTRUCTION SCHEDULE. The Government shall have thirty (30) days review period for each submittal (50 percent design and 100 percent Design) and seven (7) days review period for resubmittal of the 100 percent Design incorporating final review comments. Design review conference(s) between the Contractor and the Government may be held after submittal of the 50 percent and 100 percent design(s) if the Government determines them necessary.

1.3.6.1 Material required for 50 percent submittal

These documents shall be packaged and stamped "For Review Only - 50% Design"; each sheet of the drawings shall also be stamped.

a. Drawings

All drawings required for 100 percent submittal. Except for site, outside utilities, and structural drawings, all drawings shall be developed to approximately 50 percent completion. Site, outside utilities, and structural drawings shall be 100% complete.

b. Specifications

Specifications for site work, utilities, and structural (Division 2 and those applicable in Divisions 3, 4, 5, 15, and 16) shall be 100 percent complete. All other specifications required for the completion of the building and relocation of the Denver Resident Office shall be at least mark-ups of the required technical sections and trade sections. Include the identification of the "author" of the industry standard guide specifications used, if used, and a table of contents listing all sections to be included in the project.

c. Interior and Exterior Finish Samples

Furnish color/finish board(s) with attached samples of all exterior and interior appearance related construction items and materials the Contractor proposes to furnish, including, but not limited to, such items as floor, wall and ceiling finishes; roofing; siding and trim; interior paints and finishes; wall covering; trim items; carpet; floor, wall and ceiling tiles; doors; plastic laminates for cabinet work, and signage. Each sample shall indicate color, texture, and finish; and, if patterned, shall be large enough to define full pattern. Samples shall be identified as to type of material, area of installation, manufacturer, and transmittal number under which certification of the material represented has been submitted in accordance with the requirements of Section 01300 SUBMITTAL PROCEDURES (DURING CONSTRUCTION). Samples shall be mounted on 215 mm by 280 mm by 1.5 mm thick mat board, and shall be contained in three (3) ring binders. Epoxy glue, hot-melt glue, or contact cement shall be used to attach samples; Scotch tape, double-backed tape, or rubber cement will not be acceptable. Cover of binders shall contain title of contract, contract number, and name of Contractor.

d. Design Analysis

Design analysis for the site work, utilities, and building structure shall be 100 percent complete in accordance with the requirements specified for 100 percent design completion. Design analysis for all other work shall include, but not be limited to, references used in design, narratives of the grading and drainage design and the criteria used, types and categories of building construction, fire protection and exit requirements, description of materials and reasons for selection, and design calculations developed to the extent required to support the design of that portion of utility distribution, architectural, structural, fire protection, lightning protection, electrical, and mechanical systems included in this submittal. Include Attachments B (CODE ANALYSIS) and C (ADA ARCHITECTURAL DESIGN CHECKLIST) attached to the end of this section.

e. Submittal Register

Prepare a Submittals Register using ENG Form 4288 "Submittal Register" as specified in Section 01300 SUBMITTAL PROCEDURES (DURING CONSTRUCTION). Submittals for site work, utilities, and building structure shall be 100 percent complete. Submittals for all other work shall be developed to the extent required to support the level of design included in this submittal.

1.3.6.2 Material required for 100 percent submittal

The 100 percent design submittal includes 100 percent complete site, utility, and building design for the entire project and shall be stamped "For Review Only -100% Design"; each sheet of the drawings shall also be stamped. The backcheck design submittal(s) after the Government review of the 100 percent complete site, utility, and building design shall be stamped "100% Corrected Design"; each sheet of the drawings shall also be stamped. The 100% Corrected Design submittal is for making corrections resulting from review comments and for preparing the final project specifications. No additional time for completion of the contract will be granted to the Contractor due to insufficient design submittals. See paragraph "Government Design Review and Approval" for additional requirements.

a. Drawings

All drawings included in the required technical data for proposal submission (see paragraph "REQUIRED TECHNICAL DATA FOR PROPOSAL SUBMISSION" of Section 00120 "PROPOSAL SUBMISSION REQUIREMENTS,") shall be upgraded to 100 percent completion. Drawings shall include but are not limited to:

(1) Site Drawings

(a) Large scale site plans (1:400, 1:500, or 1:600) showing locations of all sediment basins, diversion ditches, and other erosion control structures, indicating the approximate drainage areas each will serve. Indicate the materials, construction and capacity of each structure. Site plans shall include the following:

1. Building location.

2. Existing grades and contours, finish grading and contours, drainage, and finish floor elevations.

3. Utilities.

4. Walks and retaining walls.

5. Covered entry walks.

6. Streets, drives, and parking.

7. Site fixtures (i.e., lighting, HVAC and electrical equipment, refuse containers).

8. Turfing

Establishment of turf plan shall be prepared at a scale of 1:400, 1:500, or 1:600. The plan shall indicate the limit of seeded areas and the types of turfing treatment specified.

9. Erosion Control Plans

Erosion control plans (1:400), showing locations of all sediment basins, diversion ditches, areas to receive rock blanket, and other erosion control structures, indicating the approximate drainage areas each will serve. Indicate the materials, construction and capacity of each structure.

(2) Architectural Drawings

(a) Floor plans, scale: 1:50, with all areas identified, showing:

1. Gross square footage of building; exterior and interior dimensions; size of areas; critical and basic dimensions.

2. Column lines and locations.

3. Area calculations, "U" insulation values (floor, walls, ceilings) with calculations, and live loads.

4. Door and window openings, locations and dimensions, including door swings.

5. Special design features, such as security or fire protection provisions, room fixtures, equipment, and clock location.

6. Plumbing fixture locations, including drinking fountains.

7. Fire protection floor plan, indicating fire rated walls and ratings, exit requirements, smoke and heat detectors, type of construction, and automatic extinguishing systems. Scale: 1:50.

8. Exterior elevations (all views), minimum scale: 1:50,
showing:

a. Fenestration and material indications.

b. Critical and basic dimensions.

9. Building sections, scale: as required.

10. Transverse and longitudinal sections
Scale: (1:50) for all building types.

11. Wall sections, Scale: 1:20.

11. Ceiling Plans, Scale: same as floor plan.

12. Room Finish Schedule, identifying materials and colors for ceiling, walls and partitions, and floors. This schedule may be specified in the specifications.

(3) Structural Drawings

Structural drawings, including foundation plans and details, superstructure details and connections, roof framing plans and details.

(4) Mechanical Drawings

(a) Mechanical plans, scale: 1:50.

(b) Plans and details for plumbing; heating, ventilating, and air conditioning system; and fire protection system.

(c) Location and space requirements of all equipment. Maintenance space such as for coil removal shall be located.

(d) Equipment schedules, similar to the schedules shown in COE SWD-AEIM Chapter V, Appendix A.

(5) Electrical Drawings

Electrical plans (scale 1:50) and details, showing interior and exterior electrical systems, power and lighting layouts, and panel boards. Equipment schedules, similar to the schedules shown in COE SWD-AEIM Chapter V, Appendix A.

b. Specifications

Specifications for site work and building completion, upgraded to 100 percent completion. References to "Architect/Engineer" and "Owner" in industry standard guide specifications shall be changed to refer to the "Government" or "Contracting Officer," as appropriate. The specifications shall clearly identify, where appropriate, the specific products chosen to meet the requirements of the RFP (manufacturers' brand names and model

numbers or similar product information). Turfing and landscaping sections shall indicate planting dates. Contractor shall make final proposal of all materials and finishes at this stage.

c. Submittal Register

Prepare and maintain a Submittals Register using ENG Form 4288 "Submittal Register" as specified in Section 01300 SUBMITTAL PROCEDURES (DURING CONSTRUCTION).

Fill in columns "c" through "o" and submit with the 100 percent design submittal. Under column (o), insert "GA" for Government approved items and "FIO" for Information Only (Contractor Approved) items. The Submittal Register will be returned to the Contractor along with the reviewed and approved design.

The submittal register software provided with the RFP may be used in developing and printing the submittal register. When editing the guide specifications, automatic paragraph numbering and the following submittal paragraph format, using special tokens (*, *\) must be used in order for the program to run (The program was designed to search for these codings and the corresponding reference paragraphs.). The program was designed for a numeric (1, 1.1, 1.1.1) numbering system (a numeric/alpha system may or may not work). If the program does not work, then use the SUBMIT.DBF file accompanying Section 01300; this file can be used on any spreadsheet program. The following shows the proper format for use with the submittal register program:

(Auto. para. number) SUBMITTALS

SD-## SD Title\

Item Covered by Submittal\; *[FIO][GA]*\.

Text explaining details of information to be submitted.

For Example:

1.3 SUBMITTALS

SD-04 Drawings\

Wood Doors and Frames\; *FIO*\.

Drawings indicating the location of each door, elevation of each type of door, details of construction, marks to be used to identify the doors, and location and extent of hardware blocking.

c. Design Analysis

The design analysis shall accompany the drawings and shall include complete site and building design calculations presented in a clear and legible form and in sufficient detail to permit review of the design. The design analysis shall be indexed and have pages numbered consecutively on

sheets 215 mm by 280 mm (8-1/2 by 11 inches). The design analysis shall include, but not be limited to, the following:

(1) Architectural requirements, criteria sources and materials to be used.

(2) Structural

(a) Requirements, criteria sources and references.

(b) Loads, load factors, allowances for future loads.

(c) Working stresses and factors of safety.

(d) Codes and Manuals used.

(e) Complete calculations with loading, shear, moment and stress analysis diagrams, and secondary stress calculations wherever applicable, with explanation for assumptions and conclusions. When Automatic Data Processing Systems (ADPS) or computers are utilized to perform design calculations, the design analysis will include, but not be limited to, the following information. (1) Design methods will be described, including assumptions, theories, and technical formulas employed in design solutions. (2) Copies of ADPS or computer input data and output listings presented in human language, accompanied by diagrams which identify joints, members, areas, etc., according to the notations used in the data listings, will form integral parts of the design analysis in lieu of manual computations otherwise required. These listings will be augmented with intermediate results when applicable, so that sufficient information is available to permit manual checks of final results. (3) A general description of computer programs employed on major features of the analysis. This information will be in sufficient detail so that the general method of solution and problem limitations may be identified; however, unless otherwise required by the Contractor's design contract, the non-Government firms (design Contractors) will not be required to disclose any confidential, proprietary information concerning ADPS, computer systems, or software that is not normally available to clients without additional charge. Examples of such information are details of computer program and machine language. All input data will be double checked for accuracy, and input cards, tape, or disks will be verifier punched whenever possible. Data Card decks, tapes, or disks used for final computations will be retained for the life of the construction contract. Computer software shall be compatible with MS-DOS systems.

(f) Deflection calculations as applicable.

(g) Expansion-, contraction-, and crack-control measures applicable.

(h) Foundation characteristics.

(i) Construction or erection limitations. (These limitations will also show on drawings.)

(3) Mechanical

- (a) Requirements, criteria sources, and references.
- (b) Codes and manuals used.
- (c) Computations for sizing equipment, air conditioning and heating design, plumbing design, and U- or R-values for ceilings, roofs, exterior walls, and floors.
- (d) Complete system- and unit-capacity calculations.
- (e) Loads, load factors, and allowances for future loads.
- (f) Energy Performance Calculations.

Contractor shall employ commercially available energy analysis techniques to determine the energy performance of the facility. Use of hourly energy load computer simulations (e.g., TRNSYS, DOE 2.1. BLAST, etc.) is required. Performance calculations shall also determine the peak cooling load. These calculations can be used to size the facility's mechanical systems.

- (g) Other pertinent information and criteria.

(4) Electrical

- (a) Requirements, criteria sources, and references.
- (b) Codes and manuals used.
- (c) Complete system- and unit-capacity calculations. Calculations for the maintained lighting (i.e. lux (foot candle)) intensities in all areas will be shown. Where rooms are similar in size and usage, only a typical computation is required for those areas. Computations should be arranged and tabulated to facilitate and expedite reviews. Individual circuit loads will be tabulated in volt-amperes for each panelboard or switchboard. Transformer, generator, switchboard, service-equipment, and feeder computations will indicate all demand, diversity, ambient-temperature, or conductor-grouping factors considered in the selection of equipment or conductor sizes. Short circuit calculations shall be furnished for main service equipment, panelboards and switchgear.
- (d) Loads, load factors, and allowances for future loads.

(5) Fire Protection

Comprehensive analysis of all fire-safety factors with indication of treatment provided for each potential hazard as applicable will be included.

(6) Exterior Utility Systems

- (a) Water lines.
- (b) Sanitary sewers.
- (c) Electrical Distribution

For exterior distribution systems, the computations will be tabulated for determination of conductor, transformer, and switchgear sizes showing all pertinent factors, such as mechanical strength, current-carrying capacities, voltage drop, and demand or diversity factors. When applicable, pole-height and guy and anchor strength computations will be included.

(d) Storm Drainage

The analysis of the storm drainage system shall be in sufficient detail to permit a complete review of the design.

(7) Pavement

The design analysis shall contain all information pertinent to the pavement design. This should include information furnished by the Fort Worth District, Corps of Engineers as well as data developed by the designer.

d. Equipment Schedule

Based on the results of calculations, provide a complete list of the materials and equipment proposed for heating, air conditioning and plumbing, with the manufacturer's published cataloged product installation specifications and roughing-in data. The heating and air conditioning equipment data shall include the manufacturer's wiring diagrams, installation specifications, ARI certification, and the standard warranty for the equipment. In addition, provide the manufacturer's published cataloged capacities for supply diffusers as evidence that the arrangement of supply air outlets in each room will provide the throw and spread characteristics required to cover completely all exterior wall surfaces with the blanket of warm air at the proper design velocities.]

1.3.6.3 Review Location

Review documents shall be sent, in the quantity indicated, to the addresses listed below. All documents when sent to the agencies shall be in their then-present "on-board" design status. All documents shall contain an index of contents. Work shall, however, continue up to the time of the review conference date(s) when 2 copies of then-current design documents will be brought to the issuing office for the conference review. Originals of transmittal letters shall be sent to the Area Engineer, address as shown below, and copies should accompany each mail package. Transmittal letters shall indicate distribution by use of the "ATTN" code shown in the address.

<u>ACTIVITY ADDRESS</u>	<u>QUANTITY</u>
Construction Division Attn: CEMRO-CD-Q U.S. Army Engineer District, Omaha 215 North 17th Street Omaha, NE 68102-4978	2 sets
Denver Resident Engineer U.S. Army Corps of Engineers P.O. Box 1865 Commerce City, CO 80037	3 sets
Rocky Mountain Area Engineer U.S. Army Corps of Engineers 2032 North Academy Blvd. Colorado Springs, CO 80909-1506	2 sets
Aerospace Data Facility (ADF) ADF/CE, Maj. Vincent E. Renaud Stop 77, Bldg. 401 Buckley ANG Base 18201 E. Devils Thumb Ave Aurora, Colorado 80011	8 sets
HQ AFMC/CECC Attn: Maj. Humphrey Stop 77, Bldg. 401 Buckley ANG Base 18201 E. Devils Thumb Ave Aurora, Colorado 80011	2 sets
District Engineer 12 sets US Army Engineer District, Fort Worth ATTN: CESWF-ED-TC P.O. Box 17300 Fort Worth, TX 76102-0300	

1.3.6.4 Additional Review Time

If for any reason the Government requires more time than that stated for review, then the Contractor will be granted an extension of time equal to the number of calendar days of delay.

1.3.7 Document Order of Precedence

The Contractor shall provide Base Supplies and Equipment Warehouse at Buckley Air National Guard Base, Aurora, Colorado, in accordance with the Request for Proposals, Sol. No. DACA63-97-R-0004, the Contractor's technical proposal, and the Contractor-Contracting Officer approved final

drawings and specifications. The following documents shall constitute the contract requirements in descending order of precedence as listed:

- a. The Request for Proposals.
- b. Stated and approved deviations in the Technical Proposal.
- c. The Technical Proposal where the RFP is silent.

d. Approved final design to the extent that it does not deviate from the RFP and the Technical Proposal.

1.3.8 Government Design Review and Approval

Government personnel will present review comments for discussion and resolution. Copies of comments, annotated with comment action agreed on, will be made available to all parties before the conference adjourns. Unresolved problems will be resolved by immediate follow-on action at the end of conferences. Valid comments will be incorporated. On receipt of final corrected design documents, the Fort Worth District will formally approve them and issue a Notice to Proceed. The Government, however, reserves the right to disapprove design document submittals if comments are of too great a significance. In this case, every effort shall be made during follow-up action between the Contractor and the Fort Worth District to resolve conflicts and problems such that documents can be fully approved. However, if final submittal(s) are incomplete or deficient, requiring correction by the Contractor and resubmittal for review, the cost of rehandling and reviewing will be deducted from payment due the Contractor at the rate of \$500.00 per submittal.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

- - o 0 o - -

Attachment A

[Contractor's Letterhead]

[Date:

_____]

[Contract No.

_____]

[Reviewing Component Address]

Subj: DESIGN CERTIFICATION AND TRANSMITTAL FOR

[Project Title _____]

[Project Location _____]

[Contract No. _____]

Gentlemen

Enclosed are the following documents which I hereby certify are in compliance with the RFP requirements of the subject construction contract and can be used to commence construction subject to Government approval:

1. Design Drawings
2. Project Specification
3. Design Analysis
 - a. Civil
 - b. Water Supply and Wastewater Collection
 - c. Architectural
 - d. Interior Design
 - e. Structural
 - f. Mechanical
 - g. Fire Protection
 - h. Electrical
4. Submittals Register

[Typed Name and Signature of an
Officer of the Contractor's

company]

5. Deviations

Copy to:

[As standard with the Contractor]

ATTACHMENT B

PART 3 - CODE ANALYSIS

UNIFORM BUILDING CODE (UBC) AND NFPA "LIFE SAFETY CODE" ANALYSIS

LIFE SAFETY AND FIRE PROTECTION IS AN INTEGRAL PART OF EVERY FACILITY DESIGN. RECOGNIZED CODES AND ACCEPTED SAFETY STANDARDS SHALL BE FOLLOWED IN THE DESIGN OF ALL FACILITIES. OF THE VARIOUS CODES AND SAFETY STANDARDS THE NATIONAL FIRE PROTECTION ASSOC. (NFPA) "LIFE SAFETY CODE" SHALL TAKE PRECEDENCE. ALL APPLICABLE REQUIREMENTS OF THE LIFE SAFETY CODE SHALL BE INCORPORATED INTO EACH DESIGN. FOR TYPE OF CONSTRUCTION, FIRE AREA LIMITATIONS, AND ALLOWABLE BUILDING HEIGHTS THE DESIGN SHALL FOLLOW THE UNIFORM BUILDING CODE (UBC).

CHECK LIST

PROJECT NAME _____ DATE _____
LOCATION _____

4. UNIFORM BUILDING CODE ANALYSIS

4.1 OCCUPANCY CLASSIFICATION (See Table 5A):

Area:	Classification:
	(GROUP: _____): Div. _____
	(GROUP: _____): Div. _____
	(GROUP: _____): Div. _____

PRINCIPAL OCCUPANCY _____

OTHERS (SPECIFY) _____

4.2 TYPE OF CONSTRUCTION : _____

4.3. OCCUPANCY SEPERATION REQUIRED (SEE TABLE 5-B):

_____	TO _____	= _____	HRS
_____	TO _____	= _____	HRS
_____	TO _____	= _____	HRS
_____	TO _____	= _____	HRS
_____	TO _____	= _____	HRS

4.4 FIRE RESISTANCE OF EXTERIOR WALLS: (SEE TABLE 5-A)

NORTH _____
SOUTH _____
EAST _____
WEST _____
OTHER _____

PART 3 - CODE ANALYSIS

UNIFORM BUILDING CODE (UBC) AND NFPA "LIFE SAFETY CODE" ANALYSIS

4. UNIFORM BUILDING CODE ANALYSIS

4.5 OPENINGS IN EXTERIOR WALLS: (SEE TABLE 5-A)

NORTH _____
SOUTH _____
EAST _____
WEST _____
OTHER _____

4.6 MAX. ALLOWABLE FLOOR AREA (SEE TABLE 5-C):

ALLOWABLE:

IF SPRINKLERED: _____

ALLOW. AREA INCREASES _____

CALCULATED ACTUAL FLOOR AREA:

Floor	Square Footage
-------	----------------

Totals:

4.7 MAX. ALLOWABLE HEIGHT (SEE TABLE 5-D):

FEET: _____

STORIES: _____

Proposed Height of Building:

Actual No. of Stories:

4.8 COMMENTS:

DESIGNER: _____

PART 3 - CODE ANALYSIS

UNIFORM BUILDING CODE (UBC) AND NFPA "LIFE SAFETY CODE" ANALYSIS

5. NFPA 101 "LIFE SAFETY CODE"

5.1 CLASSIFICATION OF OCCUPANCY: _____

HAZARD OF CONTENTS:

LOW _____

ORDINARY _____

HIGH _____

5.2. FIRE RESISTIVE REQUIREMENTS:

EXTERIOR WALLS: _____ HRS _____

INTERIOR WALLS: _____ HRS _____

STRUCTURAL FRAME: _____ HRS _____

VERTICAL OPENINGS: _____ HRS _____

FLOORS: _____ HRS _____

ROOFS: _____ HRS _____

EXTERIOR DOORS: _____ HRS _____

EXTERIOR WINDOWS: _____ HRS _____

BOILER ROOM ENCLOSURE _____ HRS _____

OTHER (LIST) _____ HRS _____
_____ HRS _____
_____ HRS _____
_____ HRS _____

PART 3 - CODE ANALYSIS

UNIFORM BUILDING CODE (UBC) AND NFPA "LIFE SAFETY CODE" ANALYSIS

5. NFPA 101 "LIFE SAFETY CODE"

5.3 MEANS OF EGRESS:

OCCUPANCY LOAD FACTOR: _____

OCCUPANCY	FACTOR	ACTUAL AREA	ACTUAL LOAD

5.4 NUMBER OF EXITS REQUIRED: _____

5.5 MINIMUM WIDTH OF EXITS:

CALCULATED: _____

ACTUAL: _____

5.6 MAXIMUM ALLOWABLE TRAVEL DISTANCE TO EXIT: _____

WITH SPRINKLERS: _____

5.7 EXIT DOORS:

MINIMUM WIDTH ALLOWED: _____

MAXIMUM LEAF WIDTH ALLOWED: _____

WIDTH REQUIRED FOR NO.OF OCCUPANTS: _____

PART 3 - CODE ANALYSIS

UNIFORM BUILDING CODE (UBC) AND NFPA "LIFE SAFETY CODE" ANALYSIS

5. NFPA 101 "LIFE SAFETY CODE"

5.8 EXIT CORRIDORS:

MAX. COMMON PATH OF TRAVEL: _____

MINIMUM ALLOWABLE WIDTH: _____

REQUIRED TO HAVE EXIT AT EACH END OF CORRIDOR? _____

DEAD END CORRIDORS ALLOWED? _____

MAXIMUM LENGTH: _____

WALL FIRE RESISTANCE REQUIRED: _____

DOORS & FRAME FIRE RESISTANCE REQUIRED: _____

5.9 STAIRS:

MINIMUM WIDTH _____ FOR OCCUP. LOAD OF _____

MINIMUM WIDTH _____ FOR OCCUP. LOAD OF _____

MINIMUM WIDTH _____ FOR OCCUP. LOAD OF _____

MINIMUM WIDTH _____ FOR OCCUP. LOAD OF _____

MAX. RISER ALLOWED: _____

MINIMUM TREAD ALLOWED: _____

LANDINGS:

MIN. SIZE: _____

MAX. VERTICAL DIST. BETWEEN LANDINGS: _____

REQUIRED HEIGHT OF RAILINGS: _____

HANDRAILS:

REQUIRED AT EACH SIDE? _____

INTERMEDIATE RAIL REQUIRED? _____

HEIGHT ABOVE NOSING _____

INTERMEDIATE RAIL REQUIRED? _____

MAX. SPACE ALLOWED BETWEEN RAILS: _____

STAIR ENCLOSURE REQUIRED? _____

STAIR TO ROOF REQUIRED? _____

STAIR TO BASEMENT REQUIRED? _____

5.10 HATCHWAY ACCESS TO ROOF REQUIRED? _____

PART 3 - CODE ANALYSIS

UNIFORM BUILDING CODE (UBC) AND NFPA "LIFE SAFETY CODE" ANALYSIS

5. NFPA 101 "LIFE SAFETY CODE"

5.11 LADDER ACCESS TO ROOF REQUIRED? _____

5.12 HORIZONTAL EXIT REQUIREMENTS: _____

5.13 PROTECTION OF OPENINGS NEAR EXTERIOR STAIR EXIT DOORS:

5.14 SMOKEPROOF ENCLOSURE REQUIRED: _____

5.15 RAMPS:
MAX. SLOPE TO USE AS EXIT _____
HANDRAILS REQUIRED? _____

5.16 COMMENTS:

DESIGNER: _____

FOLLOWING IS A LIST OF ADDITIONAL "NFPA" CODES THAT ARE COMMONLY USED.
INDICATE WHICH OF THESE CODES ARE USED AND ADD THOSE REQUIREMENTS TO THIS
ANALYSIS.

MIL HDBK- 1008B	FIRE PROTECTION FOR FACILITIES, ENGR, DESIGN AND CONSTRUCTION.
NFPA 10	FIRE EXTINGUISHERS, PORTABLE
NFPA 75	COMPUTER/DATA PROCESSING FACILITIES
NFPA 80	FIRE DOORS AND WINDOWS
NFPA 88A	PARKING STRUCTURES
NFPA 409	AIRCRAFT HANGARS
AFM 88-4	DATA PROCESSING FAC. DESIGN AND CONST.
AF ETL 89-3	FIRE PROTECTION CRITERIA FOR ELECTRONIC EQUIPMENT INSTALLATIONS.

ATTACHMENT C
 ADA ARCHITECTURAL DESIGN CHECKLIST
 Project Name: _____
 Project Location: _____
 Design Phase: _____

ITEM NO.		INCORP	INCORP LATER	N/A
1.	Established with the Base/owner of the facility the for handicap accessibility.	_____	_____	_____
2.	Received a waiver for no handicap accessibility requirements on the facility.	_____	_____	_____
3.	Facility is designed utilizing:			
	New Construction Criteria	_____	_____	_____
	Building Alteration Criteria	_____	_____	_____
	Historic Building Preservation Criteria:	_____	_____	_____
4.	Accessible Route (egress/corridors/halls/aisles).			
	- Provided minimum fire egress routes.	_____	_____	_____
	- Provided minimum site accessible routes.	_____	_____	_____
	- Provided proper clearance widths.	_____	_____	_____
	- Provided proper floor level changes.	_____	_____	_____
	- Provided proper floor materials.	_____	_____	_____
	- Provided protection from protruding objects.	_____	_____	_____

ITEM NO.		INCORP	INCORP LATER	N/A
5.	Ramps:			
	- Maximum slopes less than 1:12	_____	_____	_____
	- Maximum run less than 30 feet for 1:12 slopes 40 feet for 1:16 slopes	_____	_____	_____
	- Minimum clear width exceeds 36-inches.	_____	_____	_____
	- Provided proper edge protection.	_____	_____	_____
	- Provided handrails of proper configuration and diameter.	_____	_____	_____
	- Provided proper handrail extensions at top and bottom of ramp.	_____	_____	_____
	- Provided handrails at proper mounting heights.	_____	_____	_____
	- Provided proper landings.	_____	_____	_____
	- Provided proper cross slope on ramp surface.	_____	_____	_____
6.	Stairs:			
	- Protected the space below stairs from access by the blind.	_____	_____	_____
	- Provided handrails of proper configuration and diameter.	_____	_____	_____
	- Provided proper handrail extensions at top and bottom of stairs.	_____	_____	_____
	- Provided handrails at proper mounting heights.	_____	_____	_____
	- Provided treads greater than 11-inches in width.	_____	_____	_____
	- Provided proper nosings.	_____	_____	_____
7.	Elevators:			
	- Provided buttons and lanterns at the proper mounting height.	_____	_____	_____
	- Provided Braille characters.	_____	_____	_____
	- Provided proper door widths.	_____	_____	_____
	- Provided proper clearance inside elevator car.	_____	_____	_____

ITEM NO.	INCORP	INCORP LATER	N/A	8.
Doors And Hardware:				
- Provided proper door widths.	_____	_____	_____	
- Provided proper clearance on both sides of jambs.	_____	_____	_____	
- Entrance vestibules provided with adequate clearances.	_____	_____	_____	
- Provided levers on locksets and exit hardware.	_____	_____	_____	
- Provided closers with mechanical adjustments.	_____	_____	_____	
- Provided accessible thresholds.	_____	_____	_____	
- Provided protection plates on doors heavily used by wheel chair bound people.	_____	_____	_____	
9. Toilet Facilities:				
- Provided proper floor clearance through out the toilet rooms.	_____	_____	_____	
- Provided minimum number of required accessible fixtures.	_____	_____	_____	
- Provided accessible toilet stalls.	_____	_____	_____	
- Provided stall doors with correct direction of swing.	_____	_____	_____	
- Provided accessible water closets.	_____	_____	_____	
- Provided grab bars at accessible water closets.	_____	_____	_____	
- Provided grab bars with correct configuration and dimension.	_____	_____	_____	
- Provided accessible sinks/lavatories.	_____	_____	_____	
- Provided accessible urinals.	_____	_____	_____	
- Provided accessible water coolers and fountains.	_____	_____	_____	
- Provided accessible mirrors.	_____	_____	_____	
- Provided accessible toilet accessories at required locations.	_____	_____	_____	
- Provided all fixtures and accessories at proper mounting heights and clearances.	_____	_____	_____	
- Provided insulated or protected exposed pipes at lavatories.	_____	_____	_____	
10. Shower/Tub Facilities:				
- Provided the minimum number of accessible showers/tubs.	_____	_____	_____	
- Provided showers/tubs with grab bars.	_____	_____	_____	
- Provided showers/tubs with seats as required.	_____	_____	_____	
- Provided controls mounted at the proper height and location.	_____	_____	_____	
- Provided proper clearances and dimensions in showers/tubs.	_____	_____	_____	
- Provided proper floor clearance through out shower/tubs rooms.	_____	_____	_____	
- Provided doors with correct direction of swing and clearance.	_____	_____	_____	

ITEM NO.	INCORP	INCORP LATER	N/A	
Storage:				11.
- Provided accessible cabinets, shelves, closets, and drawers as required.	_____	_____	_____	
- Provided proper clearance, mounting heights, and reach provisions.	_____	_____	_____	
12. Telephones and Vending:				
- Provided the minimum number of required accessible public telephones.	_____	_____	_____	
- Provided proper floor clearance around telephone.	_____	_____	_____	
- Phone and controls mounted at proper heights and within reach.	_____	_____	_____	
- Provided vending machines on an accessible route.	_____	_____	_____	
- Provided vending machines with accessible clearances and protruding object safe guards.	_____	_____	_____	
13. Fixed Or Built-in Seating And Tables:				
- Provided the minimum number of accommodations for accessibility in areas which required fixed furniture.	_____	_____	_____	
- Provided proper floor clearance around furniture.	_____	_____	_____	
- Provide proper knee space at tables.	_____	_____	_____	
- Provided tables and counters with proper top surface heights.	_____	_____	_____	
14. Assembly Areas:				
- Provided the minimum number of accessible seating spaces.	_____	_____	_____	
- Provided seating which is easily accessible to emergency egress.	_____	_____	_____	
- Provided companion seating.	_____	_____	_____	
- Integrated and dispersed accessible seating with the rest of the seating.	_____	_____	_____	
- Provided accessible dressing rooms.	_____	_____	_____	
- Provided level floor surface at accessible seat locations.	_____	_____	_____	
- Provided clear ground or floor space at accessible seat locations	_____	_____	_____	
- Provided access to all performing areas and associated spaces.	_____	_____	_____	

ITEM NO.		INCORP	INCORP LATER	N/A
15.	Dining Halls And Cafeterias:			
	- Provided the minimum number of accessible dining spaces.	_____	_____	_____
	- Provided accessible counters and bars.	_____	_____	_____
	- Provided accessible aisles between tables or walls.	_____	_____	_____
	- Provided clear floor space at accessible dining locations.	_____	_____	_____
	- Provided accessible food service lines meeting minimum clearances and reaches.	_____	_____	_____
	- Provided accessible tableware and condiment areas.	_____	_____	_____
	- Provided raised speaker platform with protected edges.	_____	_____	_____
16.	Medical Care Facilities:			
	- At least 10% of the general patient rooms are accessible.	_____	_____	_____
	- Provided the number of accessible patient rooms as required for specialized treatment, long term care, or alterations of existing patient rooms.	_____	_____	_____
	- Provided at least one accessible entrance with weather protecting canopy or roof overhang.	_____	_____	_____
	- Provided minimum clearances within the patient rooms and around the beds.	_____	_____	_____
	- Provided accessible patient toilet/bath rooms.	_____	_____	_____
17.	Business And Mercantile:			
	- Provided at least one accessible sales counter, services counter, teller, information window, etc.	_____	_____	_____
	- Security bollards when provided, do not prevent access or egress to people in wheel chairs.	_____	_____	_____

ITEM NO.	INCORP	INCORP LATER	N/A
18. Libraries:			
- Provided access to all reading and stack areas, reference reference rooms, reserve areas, and special facilities or collections.	_____	_____	_____
- Provided at least 5% or a minimum of one of each element or fixed seating, tables, or study carrels as accessible.	_____	_____	_____
- Provided at least one lane of check out areas as accessible.	_____	_____	_____
- Provided adequate clearance and reach distances at card catalogs and magazine displays.	_____	_____	_____
- Provide stacks with minimum clear aisle width.	_____	_____	_____
19. Temporary Lodging:			
- All common and public use areas are accessible.	_____	_____	_____
- Provided accessible units, sleeping rooms, and suites.	_____	_____	_____
- Provided sleeping accommodations for persons with hearing impairments.	_____	_____	_____
- Provided a dispersed class and a range of room options.	_____	_____	_____
- Provided accessible rooms in ADAL projects.	_____	_____	_____
- Provided an accessible route to accessible sleeping rooms.	_____	_____	_____
- Provided accessible clearance widths within sleeping rooms and around beds.	_____	_____	_____
- Provided accessible doors within accessible sleeping rooms.	_____	_____	_____
- Provided accessible fixed or built-in furniture and storage units.	_____	_____	_____
- Provided accessible controls throughout accessible units.	_____	_____	_____
- Where provided as part of an accessible unit each of the following were provided as accessible: living area, dining area, at least one sleeping area, patio/terrace/balcony, toilet/bath, and carport/garage/parking.	_____	_____	_____
- Where provided as apart of an accessible unit, the kitchen, kitchenettes, wet bars, or similar amenities were also provided with accessible features.	_____	_____	_____
- Provided visual alarms, notification devices, and accessible telephones.	_____	_____	_____
- Provided accessible doors and doorways designed to allow passage into and within all sleeping units or other covered units.	_____	_____	_____
20. Transportation Facilities:			

(This section covers Air, Rail, and Bus public transportation facilities. See Section 10 of the ADA Guide for specific requirements for these facilities)

SECTION 01010

SUMMARY OF WORK

PART 1 GENERAL

1.1 GENERAL

Through the use of a "one-step" competitive negotiation procurement process, the Department of the Army desires to obtain Base Supplies and Equipment Warehouse at Buckley Air National Guard (ANG) Base, Aurora, Colorado. In this procurement procedure consideration will be given simultaneously to the qualifications of the offeror, the proposal, and to the cost implications of that proposal.

Offerors are asked to submit complete proposals for the design and construction of the Project which will be evaluated in the categories of design, technical performance, qualifications, and contract price through the use of a point and weighted value scoring system. Offerors will be furnished the evaluation criteria as part of the proposal documents. Final selection and basis for award of the Construction Contract will be on the basis of price, technical quality, and other salient factors considered to be in the Government's best interests. This is not a low bid award project.

In response to this RFP, each offeror will submit the documents specified in Section 00120 PROPOSAL SUBMISSION REQUIREMENTS for all design and construction work. If awarded the contract, the offeror shall complete the design and construction documents and construct the facility.

1.2 PROJECT DESCRIPTION

1.2.1 Warehouse Facility

The project consists of designing and constructing a 3 700 square meter high bay, base supplies and equipment warehouse facility which includes general storage, secure storage, administrative office space, toilet room facilities, utilities, security system, fire detection and fire protection systems, lightning protection system, pavement, unloading docks, and a drive-thru bay with a 4.5 metric ton overhead crane. Site work includes all utilities required to support the facility, security fencing and lighting for the site, landscaping, storm drainage and ground work, and necessary paving (sidewalks, roads, vehicle maneuvering, and parking). Tailgate height access doors and a covered loading dock with dock levelers will be provided. Primary activities within the facility are related to the delivery, assemblage, storage, repair, handling, and distribution of office type equipment and materials. Support spaces include office, toilet rooms, janitor, mechanical, and secure storage areas.

1.2.2 Relocation of Corps of Engineers Office

The Corps of Engineers Resident Office (double-wythe trailer) shall be relocated from inside the ADF secured compound to a site northeast of the warehouse site. Work includes relocation of all utilities and reconnection. Exact location will be determined after award of the contract.

1.3 PROJECT LOCATION

The Base Supplies and Equipment Warehouse will be located on Buckley Air National Guard Base (BANG), Aurora, Colorado in an area adjacent to the Aerospace Data Facility (ADF). The site is bordered on the north by Steamboat Avenue, on the east by Powderhorn Drive, and on the south and west by a storm water detention basin. See attached drawing.

1.4 FUNCTION

Design and construct a "commercial warehouse type" building to provide additional storage capability for the Aerospace Data Facility. The facility will provide immediate access to and a high bay warehouse facility for critical spare parts used to maintain continuous mission support to the ADF and associated support facilities. The facility will also provide secure storage and administrative offices for warehouse operations.

1.5 PERSONNEL AND EQUIPMENT

Approximately **10** people will be working in the warehouse. The office area shall support **4** people.

See Division 2, TECHNICAL DESIGN AND CONSTRUCTION CRITERIA, for additional project and equipment requirements.

1.6 METRIC PROJECT

This is a metric project. All dimensions and measurement units included in the offeror's proposal and the Contractor's specifications and drawings shall be metric. Imperial units (e.g. feet, inches, gallons) will not be used except as allowed in Section 01030 METRIC MEASUREMENTS.

1.7 EXISTING FACILITY DRAWINGS

Existing facility drawings will be available to the Contractor (successful offeror) upon request.

1.8 FIELD VERIFICATION

The Contractor shall field verify all existing conditions and dimensions during design and prior to construction.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

- - o O o - -

SECTION 01030 - METRIC MEASUREMENTS

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM E 380	(1992) Practice for Use of the International System of Units (SI) (the Modernized Metric System)
ASTM E 621	(1984; R 1991) Practice for the Use of Metric (SI) Units in Building Design and Construction

1.2 GENERAL

This project includes metric units of measurements. The metric units used are the International System of Units (SI) developed and maintained by the General Conference on Weights and Measures (CGPM); the name International System of Units and the international abbreviation SI were adopted by the 11th CGPM in 1960. In some cases both metric SI units and English inch-pound (I-P) units are included in a section of the specifications; the measurements used in any particular case have been determined by the circumstances involved. Specifications requiring metric measurements may contain requirements for equipment (e.g. printers, HVAC systems) described in I-P units; in which case no metric substitution will be allowed. Specifications requiring metric measurements may include references to related non-metric industry and/or Government standards; in which case the requirements of the standard govern.

1.3 USE OF MEASUREMENTS

Measurements shall be either in SI or I-P units as indicated, except for soft metric measurements or as otherwise authorized. The Contractor shall be responsible for all associated labor and materials when authorized to substitute one system of units for another and for the final assembly and performance of the specified work and/or products.

1.3.1 Hard Metric

A hard metric measurement is indicated by an SI value with no expressed correlation to an I-P value (e.g. 38 mm). Hard metric measurements are often used for field data such as distance from one point to another or distance above the floor. Products are considered to be hard metric when they are manufactured to metric dimensions or have an industry recognized metric designation.

1.3.2 Soft Metric

A soft metric measurement is indicated by an SI value which is a mathematical approximation of the I-P value shown in parentheses (e.g. 38.1 mm (1-1/2 inches)). Soft metric measurements are used for measurements pertaining to products, test values, and other situations

where the I-P units are the standard for manufacture, verification, or other controlling factor. The I-P value shall govern while the metric measurement is provided for information.

1.3.3 Neutral

A neutral measurement is indicated by an identifier which has no expressed relation to either an SI or an I-P value (e.g. American Wire Gage (AWG) which indicates thickness but in itself is neither SI nor I-P).

1.4 COORDINATION

Discrepancies, such as mismatches or product unavailability, arising from use of both metric and non-metric measurements and discrepancies between the measurements in the specifications and the measurements in the drawings shall be brought to the attention of the Contracting Officer for resolution.

1.5 RELATIONSHIP TO SUBMITTALS

Submittals for Government approval or for information only shall cover the SI or I-P products actually being furnished for the project. The Contractor shall submit the required drawings and calculations in the same units used in the contract documents describing the product or requirement unless otherwise instructed or approved. The Contractor shall use ASTM E 380 and ASTM E 621 as the basis for establishing metric measurements required to be used in submittals.

- - o 0 o - -

SECTION 01090 - SOURCES FOR REFERENCE PUBLICATION

PART 1 - GENERAL

1.1 REFERENCES

Various publications are referenced in other sections of the specifications to establish requirements for the work. These references are identified in each section by document number, date and title. The document number used in the citation is the number assigned by the sponsoring organization, e.g. UL 1 (1985; Rev thru Nov 1992) Flexible Metal Conduit. However, when the sponsoring organization has not assigned a number to a document, an identifying number has been assigned for convenience, e.g. UL's unnumbered 1992 edition of their Building Materials Directory is identified as UL-01 (1992) Building Materials Directory. The sponsoring organization number (UL 1) can be distinguished from an assigned identifying number (UL-1) by the dash mark (-).

1.2 ORDERING INFORMATION

The addresses of the organizations whose publications are referenced in other sections of these specifications are listed below, and if the source of the publications is different from the address of the sponsoring organization, that information is also provided. Documents listed in the specifications with numbers which were not assigned by the sponsoring organization should be ordered from the source by title rather than by number.

AGRICULTURAL MARKETING SERVICE (AMS)
Seed Regulatory and Testing Branch
USDA, AMS, LS Div.
Bldg. 506, BARC-East
Soil Conservation Rd.
Beltsville, MD 20705
Ph: 301-504-9430

AIR CONDITIONING AND REFRIGERATION INSTITUTE (ARI)
4301 Fairfax Dr., Suite 425
ATTN: Pubs Dept.
Arlington, VA 22203
Ph: 703-524-8800
Fax: 703-528-3816

AIR CONDITIONING CONTRACTORS OF AMERICA (ACCA)
1712 New Hampshire Avenue, NW Washington, DC 20009
Ph: 202-483-9370
FAX: 202-234-4721

AIR DIFFUSION COUNCIL (ADC)
11 S. LaSalle St., Suite 1400
Chicago, IL 60603
Ph: 312-201-0101
Fax: 312-201-0214

AIR MOVEMENT AND CONTROL ASSOCIATION (AMCA)
30 W. University Dr.
Arlington Heights, IL 60004-1893
Ph: 708-394-0404
Fax: 708-253-0088

ALUMINUM ASSOCIATION (AA)
Pubs Department
P.O. Box 753
Waldorf, MD 20601
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Kansas City, MO 64111
Ph: 816-561-8230
Fax: 816-561-7765

SHEET METAL & AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION
(SMACNA)
P.O. Box 221230
Chantilly, VA 22022
Ph: 703-803-2980
Fax: 703-803-3732

SINGLE PLY ROOFING INSTITUTE (SPRI)
20 Walnut St., No. 208
Wellesley, MA 02181
Ph: 617-237-7879
Fax: 617-237-1064

SOCIETY OF AUTOMOTIVE ENGINEERS (SAE)
400 Commonwealth Dr.
Warrendale, PA 15096-0001
Ph: 412-776-4970
Fax: 412-776-0790

SOUTHERN BUILDING CODE CONGRESS INTERNATIONAL (SBCCI)
900 Montclair Road
Birmingham, AL 35213-1206
Ph: 205-591-1853
Fax: 205-592-7001

SOUTHERN CYPRESS MANUFACTURERS ASSOCIATION (SCMA)
2831 Airways Blvd., Suite 205
Memphis, TN 38132
Ph: 901-346-2222
Fax: 901-346-2233

SOUTHERN PINE INSPECTION BUREAU (SPIB)
4709 Scenic Highway
Pensacola, FL 32504-9094
Ph: 904-434-2611
Fax: 904-433-5594

STEEL DECK INSTITUTE (SDI)
P.O. Box 9506
Canton, OH 44711
Ph: 216-493-7886
Fax: 216-493-7886 (Fax Mach distinguishes bet voice and computer)

STEEL DOOR INSTITUTE (SDOI)
30200 Detroit Rd.
Cleveland, OH 44145-1967
Ph: 216-899-0010
Fax: 216-892-1404

STEEL JOIST INSTITUTE (SJI)
1205 Forty-eighth Ave. No., Suite A
Myrtle Beach, SC 29577-5424
Ph: 803-449-0487
Fax: 803-449-1343

STEEL STRUCTURES PAINTING COUNCIL (SSPC)
4516 Henry St., Suite 301
Pittsburgh, PA 15213-3728
Ph: 412-687-1113
Fax: 412-687-1153

STEEL WINDOW INSTITUTE (SWI)
1300 Sumner Ave.
Cleveland, OH 44115-2851
Ph: 216-241-7333
Fax: 216-241-0105

TILE COUNCIL OF AMERICA (TCA)
P.O. Box 326
Princeton, NJ 08542-0326
Ph: 609-921-7050

TRUSS PLATE INSTITUTE (TPI)
583 D'Onofrio Dr., Suite 200
Madison, WI 53719
Ph: 608-833-5900
Fax: 608-833-4360

UNDERWRITERS LABORATORIES (UL)
333 Pfingsten Rd.
Northbrook, IL 60062
Ph: 708-272-8800, ext 42612
Fax: 708-272-8129

UNI-BELL PVC PIPE ASSOCIATION (UBPPA)
2655 Villa Creek Dr., Suite 155
Dallas, TX 75234
Ph: 214-243-3902
Fax: 214-243-3907

U.S. CONSUMER PRODUCT SAFETY COMMISSION (USCPSC)
Washington, DC 20207
Ph: 301-504-0580

WATER QUALITY ASSOCIATION (WQA)
4151 Naperville Rd.
Lisle, IL 60532
Ph: 708-505-0160
Fax: 708-505-9637

WELDING RESEARCH COUNCIL (WRC)
345 East 47th St.
New York, NY 10017
Ph: 212-705-7956
Fax: 212-371-9622

WEST COAST LUMBER INSPECTION BUREAU (WCLIB)
P.O. Box 23145
Portland, OR 97281
Ph: 503-639-0651
Fax: 503-684-8928

WESTERN WOOD PRODUCTS ASSOCIATION (WWPA)
Yeon Bldg.
522 SW 5th Ave.
Portland, OR 97204-2122
Ph: 503-224-3930
Fax: 503-224-3934

WOOD MOULDING AND MILLWORK PRODUCERS ASSOCIATION (WMMPA)
P.O. Box 25278
Portland, OR 97225
Ph: 503-292-9288

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SECTION 01120

SPECIAL PROJECT PROCEDURES FOR BUCKLEY ANG BASE

PART 1 - GENERAL

1.1 BASE ACCESS AND SECURITY REQUIREMENTS

1.1.1 Vehicle Passes

Each contractor and contractor employee to work on the job at Buckley must obtain a vehicle pass to enter the base. The pass will be obtained the first day of work at Buckley, or not later than the next working day. To obtain the vehicle pass, the vehicle operator must have in his possession, a current, valid driver's license, current vehicle registration, and current proof of insurance. Passes will be available at Building 501, the Pass and ID Office, Tuesday through Saturday, 0700-1500 hours. Pass and ID Office is closed Sunday, Monday and Holidays. Expired/unregistered vehicles will not be allowed on the base. Employees who are terminated from employment will surrender any and all identification media and vehicle passes to their immediate supervisor, who will in turn surrender same to the Pass and ID Office, and the supervisor will immediately escort the terminated employee off base, and notify Base Police of the termination.

1.1.2 Drivers

All drivers on Buckley will have in their possession a valid driver's license, valid vehicle registration, and proof of vehicle insurance while operating any vehicle. If vehicle is registered to someone other than the operator, the operator must provide a notarized letter from the registered owner, authorizing the operator permission to operate the vehicle.

1.1.3 Non-Scheduled Hours or Days

Contract Superintendent must notify Base Police through the Contracting Office prior to any work to be performed on non-scheduled hours/days (evenings, weekends, holidays). Any personnel working on non-scheduled hours/days must check in with Base Police, Building 501, prior to and at the completion of the work.

1.1.4 Equipment and Materials

All equipment and materials are the responsibility of the Contractor. Make sure that all equipment and materials are properly secured at the end of the work day. Any work area found by Base Police to be unsecured will be checked for intruders and the responsible Contract Superintendent will be called in to secure the areas/equipment.

1.1.5 Roadway Blockages

If any roadway is to be blocked for any reason, the Contractor must notify, through the Contracting Office, the Base Police of the blockage, prior to the blockage, and must insure that proper signs are installed to divert traffic around the affected areas. As much lead time notification as possible is appreciated for proper coordination, and notification of other activities on base.

1.1.6 Uninformed Personnel

Contractors, Subcontractors and all personnel who report for work, and do not know the location of the job site, will be held at the main gate to await escort service from the Contracting Office, the Construction Superintendent, or the first available security police force.

1.1.7 Base Roadway Rules

Base speed limits are strictly enforced with the use of radar equipment. The base speed limit is 30 MPH, unless otherwise posted. The speed limit through the gate of 20 MPH. Motorcycle operator/riders must wear protective headgear (helmets) while riding on base. Mandatory seatbelt laws are in effect on base. Seatbelts must be fastened prior to entering the base. All motor vehicle traffic must enter the base via the main gate, 6th Avenue.

1.1.8 Weapons, Cameras, and Contraband

No privately owned weapons or contraband (drugs, etc.) are permitted on any military installation, at any time. Violators will be prosecuted through the Federal Magistrates Court in Denver. Cameras are also considered to be contraband on this installation.

1.1.9 Closed Facility

Buckley ANG Base is considered to be a closed facility. No unauthorized tours or visitors will be allowed on the installation.

1.1.10 Emergency Numbers

Base Security Police emergency number is 340-9777. This number provides emergency police, fire and ambulance service. For normal business, 24 hours a day, 7 days/week, call 340-0030/9931.

1.2 PARKING

Parking of the Contractor's vehicles shall be restricted to the area as determined at the Pre-Construction Conference meeting. The company name shall be prominently displayed on all construction vehicles parked in the designated spaces.

1.3 CONTRACTOR QUALITY CONTROL (CQC)

See Section 01440 CONTRACTOR QUALITY CONTROL.

1.4 NONDOMESTIC CONSTRUCTION MATERIALS

The List of nondomestic construction material or their components included in the list set forth in paragraph 25.108 of the Federal Acquisition Regulation does not apply to the requirements of the contract clause entitled "Buy American Act Construction Materials."

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

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SECTION 01200

PROJECT MEETINGS

PART 1 - GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01300 SUBMITTAL PROCEDURES (DURING CONSTRUCTION):

SD-07 Schedules\

Daily Work Schedules\; *GA*\.

1.2 PREWORK AND PRECONSTRUCTION CONFERENCES

Approximately three weeks after award of the contract and prior to the start of any work an authorized representative of the Contracting Officer will schedule and conduct a prework conference. Prior to the start of any construction work an authorized representative of the Contracting Officer will schedule and conduct a preconstruction conference. The Contractor's Project Manager, Superintendent and his Quality Control Manager will attend these meetings. The Contractor is encouraged to have an officer of his company and representation from his sub-contractors at these conferences. These conferences will be held at the location specified by the Contracting Officer's authorized representative.

1.2.1 Start of Work

If the Contractor has submitted his Accident Prevention (Safety) Plan, Quality Control Plan, and Environmental Protection Plan for review prior to the prework meeting, these may be accepted in toto or accepted with comments at the conference. Work will not proceed until after this meeting has been held, these three plans noted above have been accepted and the Notice to Proceed has been received and acknowledged by the Contractor.

1.3 DAILY WORK SCHEDULES

This paragraph applies only to Construction related activities. In order to closely coordinate construction work under this contract, the Contractor shall prepare for and attend a weekly coordination meeting with the Contracting Officer and Using Service at which time the Contractor shall submit for coordination and approval, his proposed daily work schedule for the next two week period. Required temporary utility services, time and duration of interruptions, and protection of adjoining areas shall be included with the Contractor's proposed 2-week work schedule. At this meeting, the Contractor shall also submit his schedule of proposed dates and times of all preparatory inspections to be performed during the next 2 weeks. The items of work listed on the proposed 2-week schedule are to be keyed to the NAS by activity number and description for

each activity anticipated to be performed during the next 2-week period.
Coordination action by the Contracting Officer relative to these schedules
will be accomplished during these weekly meetings.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

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SECTION 01300

SUBMITTAL PROCEDURES (DURING CONSTRUCTION)

INDEX

ATTACHMENTS: Submittal Register (ENG Form 4288) [Sample Only]
Transmittal Form (ENG Form 4025)

- PART 1 GENERAL
 - 1.1. SUMMARY
 - 1.2. RESPONSIBILITIES
 - 1.3. DEFINITIONS
 - 1.4. SUBMITTAL CLASSIFICATION
 - 1.5. SUBMITTAL DESCRIPTION (SD) DEFINITIONS
 - 1.6. APPROVED SUBMITTALS
 - 1.7. DISAPPROVED SUBMITTALS
 - 1.8. WITHHOLDING OF PAYMENT
- PART 2 PRODUCTS (Not Applicable)
- PART 3 EXECUTION
 - 3.1. GENERAL
 - 3.2. SUBMITTAL REGISTER (ENG Form 4288)
 - 3.3. SCHEDULING
 - 3.4. TRANSMITTAL FORM (ENG Form 4025)
 - 3.5. SUBMITTAL PROCEDURE
 - 3.6. CONTROL OF SUBMITTALS
 - 3.7. GOVERNMENT APPROVED SUBMITTALS
 - 3.8. FOR INFORMATION ONLY SUBMITTALS
 - 3.9. STAMPS
 - 3.10. DISPOSAL OF SUBMITTAL SAMPLES

SECTION 01300

SUBMITTAL PROCEDURES (DURING CONSTRUCTION)

PART 1. GENERAL

1.1. SUMMARY

1.1.1. Section Includes

This section includes administrative and procedural requirements for construction submittals presented by the Contractor. This section also includes requirements for developing, submitting and maintaining a "Submittals Register."

1.1.2. Section Excludes

This section does not include requirements for facility design submittals which are specified in Section 01005 DESIGN REQUIREMENTS AFTER AWARD.

1.2. RESPONSIBILITIES

1.2.1. Contractor Responsibilities

The Contractor is responsible for total management of his work including scheduling, control, and certification of all submittals. The submittal management system provided in these specifications is intended to be a complete system for the Contractor to use to control the quality of materials, equipment and workmanship provided by manufacturers, fabricators, suppliers and subcontractors. The Contractor shall review each submittal for contract compliance. Submittals that comply will be forwarded to the Government. Submittals that do not conform will be returned to the originator to be corrected. The Submittal Register (ENG Form 4288) will be utilized to log and monitor all submittal activities. No construction or installation activities shall be performed prior to required approvals of applicable submittals. The Contractor shall perform a check to assure that all materials and/or equipment have been tested, submitted and approved during the preparatory phase of quality control inspections. The Contractor shall coordinate all submittals with the Contractor's designer.

1.2.2. Government Responsibilities

The Government will review submittals designated for Government approval and approve those that conform to contract requirements. The approval of submittals by the Contracting Officer shall not be construed as a complete check, but will indicate only that the general method of construction, materials, detailing and other information are satisfactory. Approval will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor under the CQC requirements of this contract is responsible for the dimensions and design of adequate connections, details and satisfactory construction of all work. After designated

submittals have been approved by the Contracting Officer, no resubmittal for the purpose of substituting materials or equipment will be given consideration unless accompanied by justification as to why a substitution is necessary.

1.3. DEFINITIONS

1.3.1. Construction Submittals

Documents, physical examples, and data which identify and represent materials, products, equipment, assemblies, systems, qualifications, workmanship, and testing to be provided in the construction presented for review and approval.

1.3.2. Types of Submittals

This section identifies construction submittal types, described in paragraph entitled "Submittal Description Definitions," which are grouped under the following four broad or general titles and defined below:

- a. Shop Drawings: Drawings, schedules, diagrams, and other data prepared specifically for this contract, by the Contractor or through the Contractor by way of a subcontractor, manufacturer, supplier, distributor, or other lower tier contractor, to illustrate a portion of the work.
- b. Product Data: Preprinted material such as illustrations, standard schedules, performance charts, instructions, brochures, diagrams, manufacturer's descriptive literature, catalog data, and other data to illustrate a portion of the work, but not prepared exclusively for this contract.
- c. Samples: Physical examples of products, materials, equipment, assemblies, or workmanship that are physically identical to a portion of the work, illustrating a portion of the work or establishing standards for evaluating the appearance of the finished work or both.
- d. Administrative Submittals: Data presented for review and approval to ensure that the administrative requirements of the project are adequately met but not to ensure directly that the work is in accordance with the design and in compliance with the contract documents.

1.4. SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

1.4.1. Government Approved

Governmental approval is required for deviations to the RFP and other items as designated by the Contracting Officer. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction," they are considered to be "shop drawings."

1.4.2. Information Only

All submittals not requiring Government approval will be for information only. They are not considered to be "shop drawings" within the terms of the Contract Clause referred to above.

1.5. SUBMITTAL DESCRIPTION (SD) DEFINITIONS

Construction submittals shall use the following submittal description numbers and titles:

SD-01 Data

Submittals which provide calculations, descriptions, or documentation regarding the work.

SD-04 Drawings

Submittals which graphically show relationship of various components of the work, schematic diagrams of systems, details of fabrication, layouts of particular elements, connections, and other relational aspects of the work.

SD-06 Instructions

Preprinted material describing installation of a product, system or material, including special notices and material safety data sheets, if any, concerning impedances, hazards, and safety precautions.

SD-07 Schedules

Tabular lists showing location, features, or other pertinent information regarding products, materials, equipment, or components to be used in the work.

SD-08 Statements

A document, required of the Contractor, or through the Contractor, from a supplier, installer, manufacturer, or other lower tier Contractor, the purpose of which is to confirm the quality or orderly progression of a portion of the work by documenting procedures, acceptability of methods or personnel, qualifications, or other verifications of quality.

SD-09 Reports

Reports of inspections or tests, including analysis and interpretation of test results. Each report shall be properly identified. Test methods used shall be identified and test results shall be recorded.

SD-13 Certificates

Statement signed by an official authorized to certify on behalf of the manufacturer of a product, system or material, attesting that the product,

system or material meets specified requirements. The statement must be dated after the award of this contract, must state the Contractor's name and address, must name the project and location, and must list the specific requirements which are being certified.

SD-14 Samples

Samples, including both fabricated and unfabricated physical examples of materials, products, and units of work as complete units or as portions of units of work.

SD-18 Records

Documentation to record compliance with technical or administrative requirements.

SD-19 Operation and Maintenance Manuals

Data which forms a part of an operation and maintenance manual.

1.6. APPROVED SUBMITTALS

The Contracting Officer's approval of submittals shall not be construed as a complete check, but will indicate only that the general method of construction, materials, detailing and other information are satisfactory. Approval will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor under the CQC requirements of this contract is responsible for dimensions, the design of adequate connections and details, and the satisfactory construction of all work. After submittals have been approved by the Contracting Officer, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

1.7. DISAPPROVED SUBMITTALS

The Contractor shall make all corrections required by the Contracting Officer and promptly furnish a corrected submittal in the form and number of copies as specified for the initial submittal. The Contractor shall examine his quality control plan and organization to determine why his controls did not identify the deficiency. Appropriate adjustments will be made in the quality control program and/or implementation. If the Contractor considers any correction indicated on the submittals to constitute a change to the contract, notice as required under the Contract Clause entitled "Changes" shall be given promptly to the Contracting Officer.

1.8. WITHHOLDING OF PAYMENT

Payment for materials incorporated in the work will not be made if required submittals/approvals have not been obtained.

PART 2. PRODUCTS (Not Applicable)

PART 3. EXECUTION

3.1. GENERAL

The Contractor shall make submittals as required by the specifications. The Contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Units of weights and measures used on all submittals shall be the same as those used in the contract drawings. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. Prior to submittal, all items shall be checked and approved by the Contractor's Quality Control (CQC) representative and each item shall be stamped, signed, and dated by the CQC representative indicating action taken. Proposed deviations from the contract requirements shall be clearly identified. Submittals shall include items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals. Submittals requiring Government approval shall be scheduled and made prior to the acquisition of the material or equipment covered thereby. Samples remaining upon completion of the work shall be picked up and disposed of in accordance with manufacturer's Material Safety Data Sheets (MSDS) and in compliance with existing laws and regulations.

3.2. SUBMITTAL REGISTER (ENG Form 4288)

The Contractor shall prepare and maintain a Submittal Register (ENG Form 4228) for technical specifications. At the end of this section is one set of ENG Forms 4288 listing those items of for which submittals are required by the Division 1 specifications; this list is an illustration of how the submittal register should look for the technical specifications. After award, the Contractor will be provided a submittal register program which may be used to develop the submittal register providing the sections' submittal paragraphs are formatted correctly. It will run on any IBM compatible computer; instructions for operation and installation will be provided. The submittal format shown in this section and described in Section 01005 DESIGN REQUIREMENTS AFTER AWARD must be followed in order for the program to work. The formatting uses automatic paragraph numbering and tokens (*, *\), the omission of any will prevent the program from running (The program is designed to search for these codings and the corresponding reference paragraphs). Questions concerning the program should be directed to the Fort Worth District Specifications Section, (817) 978-2294. If the submittal register program will not work, the Contractor may use the SUBMIT.DBF file, which will also be furnished the Contractor after award of the Contract, or a Contractor-developed spreadsheet format, incorporating the columns and elements on Form 4288, that is compatible with the system and software used by the Denver Resident Office.

The Contractor shall furnish one (1) set of ENG Forms 4288 and a diskette (using the program described above or another approved program which is compatible with the Corps' and the user's systems) containing the computerized ENG form 4288 at each Design Submittal on which shall be listed each item of equipment and material of each type for which fabricators drawings, and/or related descriptive data, test reports, samples, spare parts lists, O&M manuals, or other types of submittals are required by the project specifications. Columns "c" thru "o" shall be completed by the Contractor and submitted with the design submittals as required by Section 01005 DESIGN REQUIREMENTS AFTER AWARD. The Contractor shall complete columns "a," and "p" thru "r" and return six (6) completed copies to the Contracting Officer for approval within twenty (20) calendar days after the preconstruction conference. The ENG Forms 4288 will become a part of the contract after approval. Six (6) additional copies of a revised ENG Form 4288 with column a, NAS ACTIVITY CODE, filled in shall be submitted with the completed network analysis system when a network analysis system is a contract requirement. For Government approved submittals, column b shall be left blank for use later to record the respective transmittal and item number corresponding to those listed on the transmittal form entitled: "TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE" (ENG Form 4025). For Contractor approved submittals, column b may be used by the Contractor as a means of tracking submittals. The Contractor shall keep this diskette up to date and shall submit it to the Government together with the monthly payment request. The approved submittal register will become the scheduling document and will be used to control submittals throughout the life of the contract. This register and the progress schedules shall be coordinated. Remaining columns will be filled in at the appropriate time and by the appropriate authorities during construction.

3.3. SCHEDULING

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. Adequate time shall be allowed on the register for review and approval. For Government approved submittals, allow a minimum of twenty (20) calendar days exclusive of mailing time. No delays, damages, or time extensions will be allowed for time lost in late submittals or deviations proposed by the Contractor to the project specifications.

3.4. TRANSMITTAL FORM (ENG Form 4025)

The sample transmittal form (ENG Form 4025) attached to this section shall be used for submitting both Government approved and information only submittals in accordance with the instructions on the reverse side of the form. These forms will be furnished to the Contractor. This form shall be properly completed by filling out all the heading blank spaces and identifying each item submitted. Special care will be exercised to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item.

3.5. SUBMITTAL PROCEDURE

Submittals shall be made as follows:

3.5.1. Procedures

3.5.1.1. Category GA (Government Approved) Submittals

All items listed as Category GA submittals in the project specifications or on the Submittal Register shall be mailed directly to the addressee shown below as directed. For each submittal, a completed information copy of the attached transmittal form shall also be mailed to the Area Engineer and to the Resident Engineer.

Technical Reviewer

Engineering Division
Attn: CEMRO-ED-DI
U.S. Army Engineer District, Omaha
215 North 17th Street
Omaha, Nebraska 68102-4978

One (1) copy of Category GA submittals, except for those for the fire protection sprinkler system, shall be submitted to the ADF Facilities Engineer; address is shown below. Two (2) copies of the Category GA submittals for the fire protection sprinkler system shall be submitted to the ADF Facilities Engineer. These submittals shall be addressed as shown below, and placed in a separate "Out Box" in the Prime Contractor's trailer. These submittals will be picked up once a day by Government personnel.

Aerospace Data Facility (ADF)
ADF/CE, Maj. Vincent E. Renaud
Stop 77
Buckley ANG Base
18201 East Devil's Thumb Ave
Aurora, Colorado 80011

Each required submittal which is in the form of a drawing shall be submitted as one (1) reproducible and one (1) print of the drawing. Drawing prints shall be either blue or black line permanent-type prints on

a white background or blueprint. Reproducibles shall be brownline diazo or sepia and shall be of such quality that prints made therefrom are sufficiently clear for microfilm copying.

All catalog and descriptive data shall be submitted in eight (8) copies. Catalog cuts and other descriptive data which have more than one model, size, or type or which shows optional equipment shall be clearly marked to show the model, size, or type and all optional equipment which is proposed for approval. Submittals on component items forming a system or that are interrelated shall be submitted at one time as a single submittal in order to demonstrate that the items have been properly coordinated and will function as a unit.

3.5.1.2. Category FIO (For Information Only) Submittals

Except as noted below, data for all items listed as Category FIO Submittals in the various sections shall be submitted in five (5) copies to the Area Engineer using the transmittal form. Items not to be submitted in multiples, such as samples and test cylinders, shall be submitted to the Area Engineer accompanied by five (5) copies of the transmittal form. In addition, one (1) additional copy of all Category FIO submittals shall be submitted to the ADF Facilities Engineer (Address noted above).

3.5.1.3. Certificates of Compliance

Each certificate shall be signed by an official authorized to certify in behalf of the manufacturing company and shall contain the name and address of the Contractor, the project name and location, and the quantity and date or dates of shipment or delivery to which the certificates apply. Copies of laboratory test reports submitted with certificates shall contain the name and address of the testing laboratory and the date or dates of the tests to which the report applies. Certification shall not be construed as relieving the Contractor from furnishing satisfactory material, if, after tests are performed on selected samples, the material is found not to meet the specific requirements.

Purchase Orders

Copies of purchase orders shall be furnished to the Contracting Officer when the Contractor requests assistance for expediting deliveries of equipment or materials, or when requested by the Contracting Officer for the purpose of quality assurance review. Each purchase order issued by the Contractor or his subcontractors for materials and equipment to be incorporated into the project shall (1) be clearly identified with the applicable DA contract number, (2) carry an identifying number, (3) be in sufficient detail to identify the material being purchased, (4) indicate a definite delivery date, and (5) display the DMS priority rating, if applicable.

3.5.1.4. Operation and Maintenance (O&M) Instructions and Manuals

Where required by various technical sections, operations and maintenance instructions and manuals, with parts lists included, shall be provided by the Contractor in quintuplicate. O & M instructions and manuals shall be assembled in three-ring binders with index and tabbed section divider and have a cover indicating the contents by equipment or system name and project title; submit for approval to the Contracting Officer 90 days prior to final tests of mechanical and electrical systems. Each operation and maintenance manual shall contain a copy of all warranties and a list of local service representatives required by Section 01200 WARRANTY OF CONSTRUCTION. If field testing requires these copies to be revised, they shall be updated and resubmitted for approval within 10 calendar days after completion of tests. The Operations and Maintenance Instructions and Manuals shall be shown as a separate activity on the Contractor prepared construction schedule bar chart or network analysis system. In addition one reproducible unfolded copy of all wiring and control diagrams and approved system layout drawings shall be submitted with the O&M Manuals. See Section 01730 FACILITY OPERATION AND MAINTENANCE MANUAL for additional requirements.

3.5.2. Deviations

3.5.2.1. Variations for Government Approved Submittals

For Government approved submittals which include proposed deviations requested by the Construction Contractor, the column "variation" of ENG Form 4025 shall be checked. The Contractor shall set forth in writing the reason for any deviations and annotate such deviations on the submittal. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

3.5.2.2. Variations for Contractor Approved Submittals

No deviations from the project specifications, which lessen the quality of materials to be provided, will be allowed for Contractor approved submittals, unless approved by the Contracting Officer. When proposing a variation, submit a written request to the Contracting Officer, with documentation of the nature and features of the variation and why the variation is desirable and beneficial to the Government. If lower cost is a benefit, also include an estimate of the cost saving. Identify the proposed variation separately and include the documentation for the proposed variation along with the required submittal for the item. When submitting a variation for approval, the Contractor warrants the following:

a. Variation Is Compatible

The contract has been reviewed to establish that the variation, if incorporated, will be compatible with other elements of the work.

b. Contractor Is Responsible

The Contractor shall take actions and bear the additional costs, including review costs by the Government, necessary due to the proposed variation.

c. Review Schedule Is Modified

In addition to the submittal review period specified above, allow 10 additional working days for consideration by the Government of submittals with variations.

3.6. CONTROL OF SUBMITTALS

The Contractor shall carefully control his procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register."

3.7. GOVERNMENT APPROVED SUBMITTALS

Upon completion of review of submittals requiring Government approval, the submittals will be identified as having received approval by being so stamped and dated. The drawing print and six (6) sets of all catalog data and descriptive literature will be retained by the Contracting Officer. The drawing reproducible and two (2) sets of catalog data and descriptive literature will be returned to the Contractor. For samples, test cylinders, and O&M manuals, two (2) copies of the transmittal form only will be returned to the Contractor.

3.8. FOR INFORMATION ONLY SUBMITTALS

"For Information Only" submittals are the responsibility of Contractor (Approved by the Contractor). Normally submittals for information only will not be returned. Approval of the Contracting Officer is not required on information only submittals. These submittals will be used for information purposes. The Government reserves the right to require the Contractor to resubmit any item found not to comply with the contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications and will not prevent the Contracting Officer from requiring removal and replacement if nonconforming material is incorporated in the work. This does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or check testing by the Government in those instances where the technical specifications so prescribe.

3.9. STAMPS

Stamps used by the Contractor on the submittal data to certify that the submittal meets contract requirements shall be similar to the following:

<p style="text-align: center;">CONTRACTOR</p> <p style="text-align: center;">(Firm Name)</p> <p>_____ Approved</p> <p>_____ Approved with corrections as noted on submittal data and/or attached sheets(s).</p> <p>SIGNATURE: _____</p> <p>TITLE: _____</p> <p>DATE: _____</p>

3.10. DISPOSAL OF SUBMITTAL SAMPLES

When submittal samples, such as those for paint, asphalt, and concrete, are no longer required for review or testing, the Contractor shall, upon notification from the Contracting Officer, pick up and dispose of the samples in accordance with manufacturers' Material Safety Data Sheets (MSDS), all applicable Federal, State, and local regulations, and in a manner approved by the Contracting Officer."

- End of Section -

INSTRUCTIONS
ENG FORM 4288

1. Column a, will be provided by the Contractor from his Network Analysis, if required, and when a network analysis is accepted.
2. Column b, will be provided by the Contractor from Eng Form 4025 for each item. Transmittal number and Item number will be the same on both forms.
3. Column c, will be provided by the Contractor.
4. Column d thru n, will be provided by the Contractor.
5. Column o, will be provided by the Contractor. Abbreviation code will be as follows;
 - GA1 - Government Approved Category I
 - GA2 - Government Approved Category II.
 - FIO - For Information Only (Contractor Approved).
6. Column p, will be provided by the Contractor. It will be the scheduled date the Contractor expects to submit an item. It is the Contractors responsibility to calculate the lead time needed for the government approval. Note if resubmittal is required it is the Contractors responsibility to make all adjustments necessary to meet the contract completion date.
7. Column q, will be provided by the Contractor. It will be the latest date the Contractor can receive an approval and still obtain the material by need date.
8. Column r, will be provided by the Contractor. It will be the date that the material is needed at the site. If there is a network analysis it should reflect that date on the analysis.
9. Column s, will be provided by the Contractor. The code will contain the action code used on Eng Form 4025, column g, for each item submitted to the government.
10. Column t, will be provided by the Contractor. The date will be the same as shown at the top of corresponding Eng Form 4025 and will reflect the date the actions shown in column s were rendered.
11. Column u, delete.
12. Column v, will be provided by the government. The code will contain the action code used on Eng Form 4025 column i, for each item submitted to the government.
13. Column w, will be provided by the government. The date when the actions listed in column v were taken will be entered. The date will be the same as shown in Eng Form 4025, Section II.

14. Column x, self explained.

Any revisions to the submittal register shall be submitted for approval by the Contractor as soon as possible.

INSTRUCTIONS
ENG FORM 4025

1. DATE at the top of form will be the date submitted to the government which is to be completed by the Contractor.
2. TRANSMITTAL NO. Each new transmittal shall be numbered consecutively according to category in the space provided in "Transmittal No.". This number will be the identifying symbol for each submittal. Example: the first Category I item submitted should be Transmittal No. "I-001". Likewise, the first Category II item submitted should be Transmittal No. II-001. For each new submittal or for a resubmittal, the appropriate box must be marked. Resubmittals must be designated by their original sequential number followed by an "A", "B", etc. for each sequential resubmittal. Example: "I-001A" (previous submittal No. I-001).
3. TO: box will contain the name and address of the office which will review the submittal. The name and address should be given in paragraph 3.5 of Section 01304. Contractor is to complete this box after reviewing the classification provided by the government on Eng Form 4288 column o and determining the proper address.
4. FROM: box will be the name and address of the Contractor. Contractor is to complete this box.
5. CONTRACT NO. box will contain the Contractors construction contract number (e.g. DACXXX-XX-C-XXXX).
6. CHECK ONE box will be completed by the Contractor with one box marked. If a resubmittal is provided last transmittal number will be added.
7. SPECIFICATION SECTION NO. box will be completed by the Contractor. The number will be the five digit number found in the specifications. No more than one section will be covered with each transmittal.
8. PROJECT TITLE AND LOCATION box will be completed by the Contractor.
9. Column a, will be completed by the Contractor and will contain a different number for each item submitted in that transmittal. Once a number is assigned to an item it will remain the same even if there is a resubmittal.
10. Column b, will be completed by the Contractor. The description of each item on this form will include the descriptions provided by the government on the submittal register Eng Form 4288 column d thru n plus any other data necessary to describe the item. The Contractor shall submit each submittal register item all at once on one transmittal if possible. If a submittal register item can not be submitted all at once Contractor should note that in the remarks box. If a submittal register item requires several items, description shall contain submittal register description plus any additional specific descriptions. Additional items not on the submittal register will be noted in the remarks box.
11. Column c, will be completed by the Contractor. The information will be the appropriate submittal description number as described in Section 01304 or shown on submittal register Eng Form 4288 column d thru n (e.g. SD-XX).

12. Column d, will be completed by the Contractor. The number of copies will be determined by the Contractor after review of Eng Form 4288, column o, for the classification of the item and after review of paragraph 3.5 of Section 01304 "Submittal Procedures".

13. Column e, will be completed by the Contractor. The Contractor shall state all applicable paragraph numbers.

14. Column f, will be completed by the Contractor. The Contractor shall state all applicable drawing sheet numbers.

15. Column g, will be completed by the Contractor. The action codes will be one of the following when submittal is for the government:

- A - Approved as submitted.
- B - Approved, except as noted.
- C - Approved, except as noted. Refer to attached sheet resubmission required.
- G - Other (specify).

16. Column h, will be completed by the Contractor. A check shall be placed in this column when a submittal is not in accordance with the plans and specifications also, a written statement to that effect shall be included in the space provided for "Remarks".

17. Column i, will be completed by the government. The action code will be one of the following;

- A - Approved as submitted.
- B - Approved except as noted on drawings.
- C - Approved, except as noted on drawings. Refer to attached _____ sheet resubmission required.
- D - Will be returned by separate correspondence.
- E - Disapproved (See Attached).
- Fx - Receipt acknowledged, does not comply as noted with contract requirements.
- G - Other (specify).

18. REMARKS box self explained.

19. Contractor must sign all Eng Form 4025 certifying conformance.

20. Section II will be completed by the Government. Contractor is not to write in this space.

See reverse side of ENG Form 4025 for additional instructions.

SUBMITTAL REGISTER

SPECIFICATION SECTION

TITLE AND LOCATION

Base Supplies and Equipment Warehouse Buckley ANG Base, CO

CONTRACTOR

CONTRACT NUMBER

NAS ACTIV- ITY CODE a	TRANS- MITTAL AND ITEM No. b	SPECIFICATION PARAGRAPH NUMBER c	DESCRIPTION OF ITEM SUBMITTED d thru n	CLASSI- FICATION * o	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			GOVERNMENT ACTION		REMARKS x
					SUBMIT p	APPROVAL NEEDED BY q	MATERIAL NEEDED BY r	CODE s	DATE t	SUBMIT TO GOVERN- MENT u	CODE v	DATE w	
		01200	SD-07 Schedules										
		1.1.	Daily Work Schedules	GA									
		01311	SD-07 Schedules										
		1.1.	Initial Project Schedule	GA									
		1.1.	Periodic Schedule Updates	GA									
		01400	SD-01 Data										
		1.3.	Accident Prevention Plan	GA									
		01430	SD-01 Data										
		1.2.	Implementation Proposal	FIO									
		1.2.	Disposal plan	GA									
		1.2.	Application Form	FIO									
		01430	SD-09 Reports										
		1.2.	Hazardous Substance Reporting	FIO									
		01430	SD-18 Records										
		1.2.	Permit #COG-70000	FIO									
		01700	SD-04 Drawings										
		1.1.	Equipment Room Drawings	GA									
		1.1.	Record Drawings	GA									
		01700	SD-06 Instructions										
		1.1.	Operations and Maintenance	GA									
			Manuals										

* Classification: GA1: Government Approved - Category I, GA2: Government Approved - Category II, FIO: For Information Only, GA: Government Approved

ENG FORM 4288-E, May 91 (Preliminary Jun 93)

Page 1 of 2 Pages

SUBMITTAL REGISTER				SPECIFICATION SECTION									
TITLE AND LOCATION				CONTRACTOR							CONTRACT NUMBER		
Base Supplies and Equipment Warehouse Buckley ANG Base, CO													
NAS ACTIV- ITY CODE a	TRANS- MITTAL AND ITEM No. b	SPECIFICATION PARAGRAPH NUMBER c	DESCRIPTION OF ITEM SUBMITTED d thru n	CLASSI- FICATION * o	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION		GOVERNMENT ACTION		REMARKS x	
					SUBMIT p	APPROVAL NEEDED BY q	MATERIAL NEEDED BY r	CODE s	DATE t	SUBMIT TO GOVERN- MENT u	CODE v		DATE w
		01700	SD-07 Schedules										
		1.1.	Equipment List	FIO									
		1.1.	Guarantees	FIO									
		01720	SD-01 Data										
		1.3.	Service Representative	FIO									
		01730	SD-07 Schedules										
		1.2.	Training Course Schedule	GA									
		01730	SD-08 Statements										
		1.2.	Qualifications	GA									
		01730	SD-19 Operation and Maintenance Manuals										
		1.2.	Format and Outline	GA									
		1.2.	Draft Copies	GA									
		1.2.	Draft Manual for Review	GA									
		1.2.	Final Manuals	GA									
		1.2.	Format and Outline of Training	GA									
			Manuals										
		1.2.	Draft Copies of Training	GA									
			Manuals										
		1.2.	Draft Training Manual for	GA									
			Review										
		1.2.	Final Training Manuals	GA									

* Classification: GA1: Government Approved - Category I, GA2: Government Approved - Category II, FIO: For Information Only, GA: Government Approved

- NOTICE -

Engineering Form 4025 will be furnished as required.

SECTION 01311 - PROGRESS SCHEDULES

PART 1 - GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Sections 01005 DESIGN REQUIREMENTS AFTER AWARD and 01300 SUBMITTAL PROCEDURES (DURING CONSTRUCTION):

SD-07 Schedules\

Initial Project Schedule\; *GA*\.

Periodic Schedule Updates\; *GA*\.

Three copies of the schedules, in hard copy and on data disk(s), showing codes, values, categories, numbers, items, etc., as required.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 DESIGN AND CONSTRUCTION PROGRESS CHART

Pursuant to the contract clause entitled "SCHEDULE FOR CONSTRUCTION CONTRACTS" the Contractor shall prepare a schedule of design and construction utilizing a construction progress chart as described herein. Construction progress charts shall be prepared on ENG Form 2454. The Contractor shall submit three (3) copies of the Construction Progress Chart for approval. No progress payments will be made without an approved progress chart.

The Contractor shall prepare the chart with the following considerations. The contract work shall be divided into definable contract features. As a minimum, the Contractor shall address each specification section as a principle contract feature. The weighted value (WT.) column should indicate the percentage of the contract for which each principle contract feature accounts. The vertical lines shall be identified by specific time frames, (i.e., weekly, bi-weekly, monthly) with one space accounting for no more than one month. **The Contractor shall identify the date when Notice to Proceed is acknowledged on the chart. The Contractor shall also identify the design phases (design start and 50 per cent, 100 per cent, and final submittals), construction start, and contract completion date on the chart.**

The Contractor shall place bars on the chart to indicate scheduled progress for each feature of work. The Contractor shall note the anticipated percentage complete for each item at the end of each month and at the end of each scheduled block. Activities shall be identifiable by bid item if applicable.

3.2 PERIODIC SCHEDULE UPDATES

Based on the result of progress meetings, the Contractor shall submit periodic schedule updates. These submissions shall enable the Contracting Officer to assess Contractor's progress. If the Contractor fails or refuses to furnish the information and project schedule data which, in the

judgement of the Contracting Officer or authorized representative, is necessary for verifying the contractor's progress, the Contractor shall be deemed not to have provided an estimate upon which progress payments may be made.

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SECTION 01330

SURVEY, LAYOUT, AND OTHER DATA

PART 1 - GENERAL (Not Applicable)

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 CONTRACTOR VERIFICATION OF CONTRACT SURVEY DATA

During initial site layout and before existing conditions are disturbed the Contractor shall verify, in writing, the basic survey data provided on the contract (RFP) drawings. Verification shall be initiated from the point shown on the contract drawings or from the contract drawing reference point designated by the Contracting Officer's Authorized Representative and shall include, as a minimum, benchmark elevations, horizontal control points, and sufficient spot checks of critical elevations to ensure that the survey data adequately reflects existing conditions. The Contractor shall not proceed with construction until survey verification is provided to the Contracting Officer's Authorized Representative. Before an existing benchmark referenced on the contract drawings is disturbed the Contractor shall establish a new benchmark which has been approved by the Contracting Officer's Authorized Representative. Benchmarks which are destroyed without authorization from the Contracting Officer's Authorized Representative must be replaced at the Contractor's expense as prescribed in Section 00700 Contract Clause, "Layout of Work." The Contractor shall refer to Contract Clauses, "Differing Site Conditions" and "Site Investigation and Conditions Affecting the Work," for additional requirements.

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SECTION 01400

SPECIAL SAFETY REQUIREMENTS

PART 1 GENERAL

- 1.1. SUMMARY
- 1.2. PRECONSTRUCTION CONFERENCE
- 1.3. SUBMITTALS
- 1.4. ACCIDENT PREVENTION PLAN
- 1.5. RADIOLOGICAL EQUIPMENT
- 1.6. NOT USED
- 1.7. EXCAVATION AND TRENCHING
- 1.8. CONFINED SPACES

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

SECTION 01400

SPECIAL SAFETY REQUIREMENTS

PART 1. GENERAL

1.1. SUMMARY

This section provides guidelines for preparation of accident prevention plans, to implement the accident prevention clause (this specification) and EM 385-1-1, Safety and Health Requirements Manual.

1.2. PRECONSTRUCTION CONFERENCE

A preconstruction conference will be scheduled prior to beginning of work at which time representatives of the Contracting Officer will review and discuss requirements relative to planning and administration of the overall safety program. See Section 01200 PROJECT MEETINGS.

1.3. SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01300 SUBMITTAL PROCEDURES (DURING CONSTRUCTION):

SD-01 Data\

Accident Prevention Plan\; *GA*\.

1.4. ACCIDENT PREVENTION PLAN

The Contractor shall submit, prior to the start of on site construction activity, a proposed accident prevention plan which shall be the accident prevention policy to be followed by all of the Contractor's and subcontractor's personnel and supervisory staff during performance of the work.

1.4.1. Requirements

The proposed plan shall be developed after a careful analysis of the work involved and shall be tailored specifically to the conditions of this project. The Contractor's accident prevention plan shall contain, as a minimum, the following general information or procedures for the activity indicated. The Contractor shall submit his plan for review and acceptance prior to commencing work.

1.4.1.1. Responsible Individual(s)

The Contractor shall designate an onsite employee as the individual responsible for insuring the accident prevention plan is implemented and enforced. The Contractor shall have a safety/traffic monitor, on-site at all times, to direct construction traffic when they use roadways jointly with ADF employees (See Dwg. P2.03 and P2.04).

1.4.1.2. Subcontractor Supervision

Explain procedures to assure that subcontractor(s) fully comply with the accident prevention plan.

1.4.1.3. Indoctrination of New Employees

The plan shall include provisions for advising workers of the purpose of the accident prevention plan, specific hazards on the job and precautions to be taken, emergency procedures, information concerning tool box safety meetings, required protective equipment, cleanup rules and location of company safety rules (posting or handout).

1.4.1.4. Tool Box Safety Meetings

Hold weekly "Tool Box" safety meetings. Timely safety subjects shall be determined by a responsible individual. Employees will be informed of time, location, who will conduct, and subject. Identify procedures for including subcontractors. Submit written notice to the Contracting Officer.

1.4.1.5. Fire Prevention and Protection

Identify source of fire protection. Insure adequate fire extinguishers, water barrels, or other fire-fighting equipment is located on site. Explain prevention activities to include storage areas and special hazards such as welding and use of flammable liquids, and other special hazards.

1.4.1.6. Housekeeping

Daily cleanup of all debris and waste materials is required. Adequate disposal containers should be placed strategically around the site. Debris shall be put in covered containers. Debris shall be removed on a regular basis. Explain procedures that include use of barrels, dumpsters, trash chutes, etc.

1.4.1.7. Mechanical Equipment Inspection

All mechanical equipment (trucks, cranes, forklifts, backhoes, graders, etc.) shall be inspected prior to use and at fixed intervals throughout the life of the contract. Explain how inspections will be accomplished (frequency, by whom, and records to be kept).

1.4.1.8. First Aid and Medical Facilities

First aid facilities shall be made available on the job site. Arrangements for emergency medical attention shall be made prior to start of work. All emergency numbers (doctor, hospital, ambulance, fire department) shall be posted at the project superintendent's office.

1.4.1.9. Sanitation

Include provisions for toilet facilities, drinking water and washing facilities. A sufficient number of toilet and hand wash facilities as specified in EM 385-1-1 shall be provided unless permission is granted to use existing facilities (portable chemical are authorized). Insure safe drinking water and individual cups are available. For the projects where corrosive or toxic materials are used, separate washing facilities are required.

1.4.1.10. Safety Promotions

The Contractor shall promote accident prevention. Identify method (posters, awards etc.).

1.4.1.11. Accident Reporting

All accidents (employee injuries, vehicle, building, or equipment damage etc.) regardless of their severity, shall be reported to the onsite

government representative or to the area engineer, who in turn will advise the Contractor of forms to be submitted and timeframes.

1.4.1.12. Job Hazard Analysis

When job situations change and it is necessary to alter safety requirements, a Job Hazard Analysis will be accomplished, documented, and added as an addendum to the Accident Prevention Plan. Each Job Hazard Analysis shall include, but not be limited to, a description of the work, probable hazards related to that work and positive precautionary measures to be taken to reduce or eliminate each hazard. An example of changing situations may be new subcontractors performing work such as earth moving, trenching, concrete work, roofing, electrical, masonry etc. The onsite government representative will determine the format and amount of detail required of the written plan.

1.5. RADIOLOGICAL EQUIPMENT

In addition to any applicable Nuclear Regulatory Commission, state, local, or other federal licenses or permits, and in accordance with requirements of EM 385-1-1, Safety and Health Requirement Manual, the Contractor is required to obtain a service permit to use, store, operate, or handle a radiation producing machine or radioactive materials on a Department of Defense (DOD) Installation. The service permit shall be obtained from the appropriate U.S. Army or U.S. Air Force Command through the Contracting Officer's representative. The Contractor should notify the Contracting Officer during the prework conference if a radiation producing device will be utilized on a DOD Installation in order to determine the permit application requirements, and allow a lead time of 45 days for obtaining a permit.

1.6. NOT USED

1.7. EXCAVATION AND TRENCHING

The standards for excavation and trenching are outlined in 29 CFR Part 1926, Subpart P. These standards shall be followed in addition to those outlined in EM 385-1-1.

1.8. CONFINED SPACES

The standard for confined spaces as outlined in 29 CFR Part 1910.146 and Part 1926 are to be used in place of Section 06.I of EM 385-1-1.

PART 2. - PRODUCTS (Not Applicable)

PART 3. - EXECUTION (Not Applicable)

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SECTION 01430

ENVIRONMENT PROTECTION AND COMPLIANCE REQUIREMENT

Attachments: Fugitive Dust Control Plan For Land Development (See Attachment No. 4, Environmental Compliance Forms)

- PART 1 GENERAL
 - 1.1 REFERENCES (Not Applicable)
 - 1.2 SUBMITTALS
- PART 2 PRODUCTS (Not Applicable)
- PART 3 EXECUTION
 - 3.1 GENERAL
 - 3.2 IMPLEMENTATION
 - 3.3 PRECONSTRUCTION SURVEY
 - 3.4 PROTECTION OF LAND AREAS
 - 3.5 PROTECTION OF TREES AND SHRUBS
 - 3.6 PROTECTION OF WATER RESOURCES
 - 3.7 WASTE DISPOSAL
 - 3.8 BURNING
 - 3.9 DUST CONTROL
 - 3.10 EROSION AND SEDIMENT CONTROL
 - 3.11 CORRECTIVE ACTION
 - 3.12 POST-CONSTRUCTION CLEANUP OR OBLITERATION
 - 3.13 SPILL PREVENTION AND RESPONSE PLAN
 - 3.14 ENVIRONMENTAL PERMITS, NOTICES, REVIEWS AND/OR APPROVALS
 - 3.15 ARCHEOLOGICAL PRESERVATION
 - 3.16 EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW REQUIREMENTS

SECTION 01430

ENVIRONMENT PROTECTION

Attachments: Fugitive Dust Control Plan For Land Development

PART 1 GENERAL

1.1 REFERENCES (Not Applicable)

1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01300 SUBMITTAL PROCEDURES (DURING CONSTRUCTION):

 *SD-01 Data *\

 Implementation Proposal\; *FIO*\.

 Disposal plan\; *GA*\.

 Application Form\; *FIO*\.

Copy of the completed application form for the Water Supply and Fire Suppression Water Permit or proof of exemption.

Copy of the completed application form for the domestic Wastewater Discharge Permit or proof of exemption for connection to the existing system.

Copy of the completed application form for Municipal Solid Waste Management Permit or proof of exemption.

Copy of the completed application form for the Air Pollution Emission Notice (APEN) for New Source.

Copy of the completed application form for the Air Emission Notice of Start-Up or proof of exemption.

Copy of Air Pollution Emission Notice (APEN) and Emission Control Plan for construction activity.

 SD-09 Reports\

 Hazardous Substance Reporting\; *FIO*\.

The Contractor shall submit a copy of the attached Emergency Planning and Community Right to Know notification and other reports to the Contracting Officer and to the Facility Emergency Coordinator (FEC) as specified in PART 3 paragraph EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW REQUIREMENTS.

 *SD-18 Records *\

 Permit #COG-70000\; *FIO*\.

Submittal is required only if the Contractor chooses requirements specified in paragraph: Surface Discharge.

Colorado CPDES Construction Dewatering Permit for hydrostatic testing

This will include the copy of the Permit and all subsequent reports and/or information required by the permit or state.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL

The Contractor shall ensure that the construction and operation of the Base Supplies and Equipment Warehouse is in full environmental compliance with all applicable Federal, State, Local and Regional environmental laws and regulations including but not limited to the following:

Clean Air Act (CAA)
Clean Water Act (CWA)
Comprehensive Environmental Response Compensation and Liability Act (CERCLA)
Endangered Species Act
National Environmental Policy Act (NEPA)
National Historical Preservation Act (NHPA)
Occupational Safety and Health Act (OSHA)
Resource Conservation and Recovery Act (RCRA)
Safe Drinking Water Act (SDWA)
Toxic Substance Control Act (TSCA)

The Contractor shall perform all work in such manner as to minimize the polluting of air, water, or land, and shall, within reasonable limits, control noise and the disposal of solid waste materials, as well as other pollutants.

3.2 IMPLEMENTATION

Within 10 calendar days after Notice to Proceed and prior to commencement of the work at the site, the Contractor shall perform the following:

3.2.1 Implementation Proposal

Submit in writing his detailed proposal for implementing the requirements for environmental pollution control specified herein.

3.2.2 Meeting

Meet with representatives of the Contracting Officer to review and alter his proposal as needed for compliance with the environmental pollution control program.

3.3 PRECONSTRUCTION SURVEY

Prior to start of any on-site construction activities, the Contractor and the Contracting Officer's Representative (COR) shall make a joint condition survey after which the Contractor shall prepare a brief report indicating on a layout plan the condition of trees, shrubs and grassed areas immediately adjacent to the site of the work and adjacent to his assigned storage area and access route(s) as applicable. This report will be signed by both the Contracting Officer's Representative and Contractor upon mutual agreement as to its accuracy and completeness.

3.4 PROTECTION OF LAND AREAS

Except for work areas, storage areas, or access routes specifically assigned for the use of the Contractor under this contract, the land areas outside the limits of permanent work performed under this contract shall be preserved in their present condition in accordance with the CONTRACT CLAUSES. The Contractor shall confine his construction activities to areas defined for work on the plans or specifically assigned for his use. Storage and related areas and access routes required temporarily by the Contractor in the performance of the work will be assigned by the Contracting Officer's Representative in accordance with the CONTRACT CLAUSES. No other areas on Government premises shall be used by the Contractor without written consent of the Contracting Officer's Representative.

3.5 PROTECTION OF TREES AND SHRUBS

Except for trees or shrubs marked on the plans to be removed, the Contractor shall not deface, injure or destroy trees or shrubs, nor remove or cut them without special authority. No ropes, cables, or guys shall be fastened to or attached to any existing nearby trees for anchorages.

3.5.1 Tree Protective Structures

Where, in the opinion of the Contracting Officer's Representative, trees may possibly be defaced, bruised, injured, or otherwise damaged by the Contractor's equipment or by his other operations, he may direct the Contractor to provide temporary protection of such trees by placing boards, planks, or poles around them.

3.5.2 Restoration of Damaged Trees

Any tree scarred or damaged by the Contractor's equipment or operations shall be restored as nearly as possible to its original condition at the Contractor's expense. All scars made on trees not designated on the plans to be removed by construction operations shall be coated as soon as possible with an approved tree wound dressing. Trees that are to remain, either within or outside established clearing limits, that are damaged by the Contractor so as to be beyond saving in the opinion of the Contracting Officer's Representative, shall be immediately removed, if so directed, and replaced with a nursery-grown tree of the same species and size.

3.6 PROTECTION OF WATER RESOURCES

The Contractor shall control the disposal of fuels, oils, bitumens, calcium chloride, acids or harmful materials, both on and off the Government premises and shall comply with applicable Federal, State, County and Municipal laws concerning pollution of rivers, streams, and wetlands while performing work under this contract. Special measures shall be taken to prevent chemicals, fuels, oils, greases, bituminous materials, herbicides, and insecticides from entering public waters. Water used in on-site material processing, concrete curing, foundation and concrete cleanup, and other waste waters shall not be allowed to reenter a stream if an increase in the turbidity of the stream could result therefrom.

3.6.1 Disposal of Water Generated During Construction Hydrostatic Testing and/or Disinfection Activities

3.6.1.1 Hydrostatic Test Water

The Contractor shall determine the method of disposal for the hydrostatic test water. These methods include the following. Water generated during hydrostatic testing shall be land applied at the locations indicated on

drawings in accordance with Paragraph: LAND APPLICATION or shall be surface discharged in accordance with Paragraph: SURFACE DISCHARGE or shall be discharged into the sanitary sewer system at the location indicated on drawings in accordance with Paragraph: SANITARY SEWER DISCHARGE.

3.6.1.2 Water Generated From Disinfection, Concurrent Disinfection/ Hydrostatic Testing or Flushing of Lines

Water generated from the flushing of lines after disinfection or disinfection in conjunction with hydrostatic testing, shall be land applied at the locations indicated on drawings in accordance with Paragraph: LAND APPLICATION or shall be surface discharged in accordance with Paragraph: SURFACE DISCHARGE or shall be discharged into the sanitary sewer system at the location indicated on drawings in accordance with Paragraph: SANITARY SEWER DISCHARGE .

3.6.2 Criteria For Disposal

Prior to hydrostatic testing, disinfection or flushing of lines, the Contractor shall submit a disposal plan detailing the method of disposal for approval. The disposal plan for Land Application shall include a sketch showing the construction site and the proposed location of the disposal of generated water. The disposal plan for Land Application shall also include a description of the equipment which will be used for the removal of water and a description of filtration methods to be implemented as needed. In addition, the date the discharge will begin, the duration of discharge, and the rate of discharge shall be provided. If the method of disposal is Surface Discharge requiring a state issued permit, the documentation required for the application and issued permit will suffice as the disposal plan. For Sanitary Sewer discharge the disposal plan shall include the rate and location of discharge into the sewer.

3.6.2.1 Land Application

Land Application shall follow State requirements, however no permit will be necessary. "Land application" implies that the Contractor shall discharge water at a rate which allows the water to percolate into the soil. No sheeting action, soil erosion, discharge into storm sewers, defined drainage areas, or discharge into the "waters of the State" shall occur. The Contractor shall contact the Colorado Department of Health, Water Quality Control Division to discuss the water quality parameters for chemical contaminants (such as chlorine), oil, grease and total suspended solids and shall ensure that all water intended for land application will meet the State requirements.

3.6.2.2 Surface Discharge

Surface discharge shall be in accordance with Colorado's Pollutant Discharge Elimination System (CPDES) Construction Dewatering Permit #COG-70000. "Surface discharge" implies that the water is discharged with possible sheeting action and subsequent soil erosion may occur. Waters that are surface discharged may terminate in drainage ditches, creeks, or "waters of the State" and require a discharge permit. The State of Colorado requires a minimum of 30 days to process the permit application. Prior to the discharging of water generated during hydrostatic testing and/or disinfection, the Contractor shall submit a copy of the completed application form, a copy of the Colorado CPDES Construction Dewatering Permit #COG-70000 issued by the State of Colorado for this contract and any subsequent reports and/or information required by the permit or State.

3.6.2.3 Sanitary Sewer Discharge

Only water generated from the flushing of lines after disinfection or disinfection in conjunction with hydrostatic testing shall be discharged into the sanitary sewer system at the location indicated.

3.7 WASTE DISPOSAL

As part of his proposed implementation under paragraph 3.2, and prior to on-site construction, the Contractor shall submit a description of his scheme for handling and disposing of all wastes resulting from the construction work under this contract. If any waste is dumped in unauthorized areas, the Contractor shall remove the waste and restore the area to the condition of the adjacent undisturbed areas. Where directed, soil which is contaminated by the Contractor shall be excavated, disposed of as approved by the Contracting Officer's Representative, and replaced with suitable fill material, all at the expense of the Contractor.

3.8 BURNING

Burning is prohibited on the Government premises. If the Contractor elects to dispose of waste materials off the Government premises by burning, make arrangements for such burning area and, as specified in CONTRACT CLAUSES clause: "Permits and Responsibilities," conform to all local regulations.

3.9 DUST CONTROL

The Contractor shall maintain all excavations, embankments, stockpiles, access roads, waste areas, and all other work areas free from excess dust to such reasonable degree as to avoid causing a hazard or nuisance to the Using Service or to others. Approved temporary methods consisting of sprinkling, chemical treatment, or similar methods will be permitted to control dust. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs. The Contractor shall comply with the attached Fugitive Dust Control Plan for Land Development.

3.10 EROSION AND SEDIMENT CONTROL

The Contractor shall be responsible for providing erosion and sediment control measures in accordance with local, state, and federal regulations. The erosion and sediment controls selected and maintained by the Contractor shall be such that local, state, and federal water quality standards are not violated as a result of the Contractor's construction activities. Any deficiencies in the Contractor's controls determined by the Contracting Officer to have caused a violation of water quality standards shall be remedied by the Contractor at his own expense. The area of bare soil exposed at any one time by construction operations should be held to a minimum. Any erosion and sediment control measures which are damaged or found to be ineffective shall be remedied by the Contractor at no additional cost to the Government. Any areas damaged by erosion shall be repaired by the Contractor at no additional cost to the Government.

3.11 CORRECTIVE ACTION

The Contractor shall, upon receipt of a notice in writing of any noncompliance with the foregoing provisions, take immediate corrective action. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders shall be made the subject of a claim for extension of time or for excess costs of damages by the Contractor unless it was later determined that the Contractor was in compliance.

3.12 POST-CONSTRUCTION CLEANUP OR OBLITERATION

In accordance with CONTRACT CLAUSES clause: "Cleaning Up," the Contractor shall, unless otherwise instructed in writing by the Contracting Officer, obliterate all signs of temporary construction facilities such as haul roads, work areas, structures, foundations of temporary structures, stockpiles of excess or waste materials, and other vestiges of construction prior to final acceptance of the work. The disturbed areas shall be graded and filled and the entire area seeded.

3.13 SPILL PREVENTION AND RESPONSE PLAN

The Contractor shall include a Spill Prevention and Response Plan in the Implementation Proposal. The plan shall describe the Contractor's procedures for preventing and responding to spills of hazardous materials. The plan shall include the requirements contained within the Buckley ANGB Spill Prevention and Response Plan. A copy of the Buckley ANGB Spill Prevention and Response Plan may be obtained through the Contracting Officer.

3.14 ENVIRONMENTAL PERMITS, NOTICES, REVIEWS AND/OR APPROVALS

3.14.1 Identification of Environmental Construction and Operating Permits and Notices Requirement

The Contractor shall review the complete project design and determine the environmental construction permits, notices, reviews and/or approvals required prior to project construction and during construction. Since the Base Supplies and Equipment Warehouse is in the Buckley Air National Guard Base (ANGB), operation of the facility will affect the on-going base environmental operating permit requirements. The Contractor shall contact the appropriate Federal, State, Regional and Local agencies to identify the time frames required for the environmental permits and notices to be in-place prior to construction, the time frames and fees required for regulatory agencies permit application review and approval.

The Contractor shall discuss findings in the environmental section of the project design document.

3.14.2 Environmental Permits and Notices Application

The Contractor shall obtain and complete application for all required permits and/or notices. The Contractor is responsible for preparing all supporting material, including but not limited to engineering reports, emission surveys, diagrams, project site layout plans, pollutant load calculations, application fees for the regulatory agency's review and/or approval of the permit application. If, in lieu of permits, the regulatory agency requires review and approval of the design, the Contractor shall submit the design for approval and obtain approval prior to construction.

The Contractor shall submit, to the regulatory agency, the documents to obtain the permit and/or approval and be responsible for all fees associated with the permit review, and/or approval. If documents are required to be signed and/or submitted by the Federal Facility or user, the Contractor shall prepare the permits application, complete the technical portions of documents, prepare the supporting material, and submit to the Contracting Officer's Representative (COR) with sufficient time for obtaining the permit prior to construction.

3.14.3 Coordination with Contracting Officer's Representative

The Contractor shall notify the COR of any requirements, submittals schedule and fees for a modification to any existing Base Operating Permit. The Contractor shall submit all technical information required for the modification to the Contracting Officer. The Contractor shall obtain necessary environmental permits required during construction. Prior to Construction, the permits and/or approvals shall be submitted to the Contracting Officer's Representative.

3.14.4 Records of Permit Application

The Contractor shall provide the complete new or modified permit application package which includes a copy of each completed permit application form, technical data, drawings and supporting material to the project design document.

3.15 PERMITS, NOTICES, REVIEWS, AND/OR APPROVALS FOR BASE SUPPLY AND EQUIPMENT WAREHOUSE

The following is a list of permits, notices, reviews, and/or approvals known to be required for this project at project definition. This listing is not to be considered all-inclusive by the Contractor, other permit and notice requirements identified during project design phase shall be included to accomplish environmental compliance.

3.15.1 Air Pollution Emission Notice (APEN) for New Source

The Clean Air Act delegates regulatory authority to the U.S. Environmental Protection Agency (USEPA). The USEPA has approved the Colorado Air Pollution Control Program implemented by the Colorado Department of Health (CDH). The CDH has issued Emission Permit 90AR147 to Buckley Air National Guard Base (ANGB) for equipment that either falls under regulated categories of emission sources or emits regulated air pollutants. The permit requires submittal of a proposed emission calculation procedure for any new source that may exceed the permit allowable emission. The Contractor shall demonstrate compliance with the permit and applicable regulatory requirements to CDH for approval of new source.

The Contractor shall submit to CDH, for Buckley ANGB, an Air Pollution Emission Notification (APEN) of new source from operating the Base Supplies and Equipment Warehouse and demonstrate that it will not exceed the permit allowable emission limit per Permit Condition 8. The new source will be one (1) natural gas-fired heating system and one (1) unleaded-gasoline operated fork lift. The Contractor shall complete the APEN with technical portions of the required applications, provide supporting documents and submit for regulatory review prior to initiation of construction.

3.15.2 Air Emission Notice of Start-Up

The Contractor shall complete the application, including the technical portions of the Notice of Start-Up and submit to CDH. If Notice of Start-up is exempted for operating the new equipment, proof of exemption shall be obtained by the Contractor. The Notice of Start-up or document of exemption shall be provided to the Contracting Officer's Representative prior to the initiation of construction.

3.15.3 Air Pollution Emission Notice (APEN) and Emission Control Plan for the Construction Activities

CDH regulations also require APEN and fugitive particulate emission control plans for surface area disturbances such as clearing, grubbing, grading, and

excavation. The regulations require facilities in non-attainment areas to use all available and practical methods that are technologically feasible and economically reasonable to minimize fugitive particulate emissions. Management practices such as watering the site during excavation, trenching and grading; watering the access roads; wetting and covering excavated material in trucks during transport; reducing the speed of the transporting vehicle may be implemented to reduce fugitive particulate emissions during construction. The Contractor shall obtain the APEN and prepare fugitive particulate emission control plan from CDH for construction of the Base Supplies and Equipment Warehouse. The APEN or document to prove exemption shall be provided to the Contracting Officer's Representative prior to initiation of construction.

3.15.4 Water Supply and Fire Suppression Water Permit

The Safe Drinking Water Act (SDWA) governs the water quality in the public water system. EPA administers the law through 40 CFR 141, 142, and 143. The SDWA authorizes (1) EPA to approve state and local drinking water programs and (2) Colorado Department of Health (CDH) and local agencies to implement an EPA-approved program. The SDWA requires Federal Facilities to comply with Federal, State, and Local requirements; Executive Order 12088 directs Federal Facility compliance; and AFR 161-44 established the United States Air Force program.

Water supply is obtained from the City of Aurora to the entire base. Water supply to the Base Supplies and Equipment Warehouse is obtained from the base water supply system. It appears that water permit is not required for the Base Supplies and Equipment Warehouse. However, the Contractor shall ensure that water permit is not required from City of Aurora for domestic water supply and/or fire suppression. Discussion shall be provided with the environmental section of the project design document.

3.15.5 Wastewater Discharge Permit

The Clean Water Act (CWA) governs the wastewater discharges. EPA administers the law through 40 CFR 122, 125, 131, 401, and 403. The CWA authorizes EPA to (1) approve state and local programs and (2) Colorado Department of Health (CDH) and local agencies to implement an EPA-approved program. The CWA requires Federal Facilities to comply with Federal, State, and local requirements; Executive Order 12088 directs Federal Facility compliance; and AFR 19-7 and AFR 86-4 implement the USAF programs.

The Base Supplies and Equipment Warehouse charges its wastewater to the Buckley Air National Guard Base (ANGB) wastewater collection system, which then discharges to the publicly owned City of Aurora treatment works.

Buckley ANGB operates under City of Aurora Industrial Wastewater Discharge Permit No. I-103.1 which requires monitoring in the sewer main leaving the base. The Contractor shall identify if there is a need to establish a sewage monitoring point to quantify sewage flow rate and/or quality of the Base Supplies and Equipment Warehouse in the environmental section of the project design document. The necessary design features shall be incorporated as part of the sanitary sewer system layout and specified in specification for SANITARY SEWER design.

The CDH Procedural Regulations of Site Applications for Domestic Wastewater Treatment Works (Title 5, CCR, Section 1002-12.2.2) requires permits for domestic wastewater works and appurtenances such as pumping stations. If lift stations are necessary in the sewage discharge system for this project, the lift stations permit requirements shall be identified in the

environmental section of the design document. The permit application required prior to construction shall be specified in the specification.

The Contractor shall identify if a domestic wastewater discharge permit is required for operating the Base Supplies and Equipment Warehouse and discuss the findings in the environmental section of the project design document. The Contractor shall be responsible to obtain all wastewater discharge permits as required for operation of the Base Supplies and Equipment Warehouse.

3.15.6 Storm water Discharge Notice of Intent (NOI) and Storm Water Pollution Prevention Plan

The Base Supplies and Equipment Warehouse project facility is 3716.12 square meters (40,000 square feet) and the project site is approximately 0.40 hectare (1 acre) and all of it will be disturbed. However, Storm Water Pollution Prevention Plan (SWPPP) is not required because the total disturbed area is less than 2.02 hectares (5 acres).

3.15.7 Municipal (non-hazardous) Solid Waste Management and Permit

The Contractor shall identify if municipal solid waste permit is needed from the City of Aurora to operate the Base Supplies and Equipment Warehouse. The Contractor shall be responsible all applicable municipal solid waste permit and provide necessary data such as the volume of municipal solid waste generated by the project facility.

Discussion shall be provided in the environmental section of the project design document.

3.15.8 Hazardous Waste Management and Permit and/or Notice

The Buckley Air National Guard Base (ANGB) has the Buckley Hazardous Waste Management Plan (COANG 1992a) to manage hazardous waste. No hazardous waste is anticipated in operating the Base Supplies and Equipment Warehouse. Hazardous waste management permit and/or notice is not required for this project.

The project site for the Base Supplies and Equipment Warehouse initially had World II barracks, and they have been demolished. Currently, no known hazardous wastes are present at the project site. During site clearing, grubbing, excavation and utility trenching if abandoned asbestos cement piping, leaded pipe joints, and soil contamination are encountered, construction activities shall be suspended and the Contracting Officer's Representative shall be notified immediately. Submittal of applicable abatement Notice of Intent (NOI) to Colorado Department of Health prior to abatement shall also be required.

The encountered asbestos cement piping shall be abated and disposed of in accordance with 40 CFR Part 61, 40 CFR Part 763, 29 CFR Part 1910 and 1926, and applicable Colorado Code of Regulations (CCR). The encountered pipe leaded joints shall be abated and disposed of in accordance with 29 CFR 1910 and 1926, 40 CFR 260 through 265 and 268, and applicable Colorado Code of Regulations (CCR). Other hazardous construction material shall be disposed of in accordance with 40 CFR 260 through 265, and 268, and applicable CCR.

Discussion shall be provided in the environmental section of the project design documentation and specification.

3.16 ARCHEOLOGICAL PRESERVATION

Should the Contractor uncover any skeletons, artifacts or other archeological remains during the course of excavation, the work shall be stopped and the Contracting Officer notified immediately.

3.17 EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW REQUIREMENTS

The Contractor shall comply with the requirements of Sections 301 through 312 of the Emergency Planning and Community Right-to-Know Act (EPCRA), also known as Superfund Amendments and Reauthorization Act (SARA) Title III, as published in 40 CFR Part 355. The Contractor shall also comply with all state regulations and procedures which result from EPCRA and the hazard communication program requirements of COE EM 385-1-1. The following planning and reporting requirements involve the Contractor's reporting requirements but are not all inclusive; i.e. transport regulations are not addressed. It is the Contractor's responsibility to comply with all Federal, state, and local emergency planning and reporting requirements.

3.17.1 Definitions and Acronyms

3.17.1.1 CERCLA Hazardous Substance (CHS)

A CERCLA Hazardous Substance (CHS) is any substance listed in Section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act, also referred to as Superfund; the list of substances also appears in Table 302.4 of 40 CFR 302.

3.17.1.2 Contracting Officer (CO)

The Contracting Officer (CO) is the site owner or operator's construction representative.

3.17.1.3 Extremely Hazardous Substance (EHS)

An Extremely Hazardous Substance (EHS) is any substance listed in Appendices A and B of 40 CFR 355.

3.17.1.4 Facility Emergency Coordinator (FEC)

Facility Emergency Coordinator (FEC) is the representative of the facility Owner or Operator. The Contractor shall identify the FEC and notify the FEC as described below each time the Contractor brings a hazardous substance onto the construction site.

3.17.1.5 Hazardous Chemical Substance (HCS)

A Hazardous Chemical Substance (HCS) is any substance defined as hazardous under 29 CFR 1910.1200, with exceptions as listed in 40 CFR 370.2; generally any substance with a Material Safety Data Sheet (MSDS).

3.17.1.6 Reportable Quantity (RQ)

Reportable Quantity (RQ) is a specified minimum amount of a CHS or an EHS which, if released, must be reported immediately to the FEC. The RQ for a CHS is listed in Table 302.4 of 40 CFR 302; the RQ for an EHS is 0.45 kg (1 pound).

3.17.1.7 Threshold Planning Quantity (TPQ)

Threshold Planning Quantity (TPQ) is a specified minimum amount of an EHS which, if brought onto the construction site, must be reported within a stated time to the FEC. The TPQ for an EHS is listed in Appendices A and B of 40 CFR 355 or is the quantity published in state code, whichever is less.

3.17.2 Hazardous Substance Reporting

Whenever a HCS or an EHS substance is brought onto the construction site, the Contractor shall submit the attached reporting form to the FEC, the fire department with jurisdiction over the site, and the Contracting Officer as described below:

- a. within 5 days for an EHS substance which (1) equals or exceeds its TPQ, or (2) is a solid or liquid weighing 225 kg (500 pounds) or more, whichever is less, or
- b. within 10 days for a HCS substance which equals or exceeds 4,500 kg (10,000 pounds) for a solid or 208 liters (55 gallons) for a liquid.

3.17.3 Emergency Release Notification for Listed Hazardous Substances

The Contractor shall immediately notify the FEC and the Contracting Officer if there is a release of an EHS or a CHS substance whose quantity equals or exceeds its RQ.

3.17.3.1 Emergency Notification Information

Emergency notifications shall consist of the following information:

- a. The Contractor's name, the name and telephone number of the person making the report, and the name and telephone number of the Contractor's contact person;
- b. The chemical name and identification;
- c. An estimate of the quantity released;
- d. The location of the release;
- e. The time and duration of the release;
- f. The medium receiving the release (air, land, water);
- g. Known acute or chronic health risks;
- h. Medical advice when necessary; and
- i. Recommended community precautions.

3.17.3.2 Follow-Up Notice

Within 5 days of the release, a written follow-up notice of the release shall be provided to the FEC and the Contracting Officer. The written notice shall update information provided in the initial report, provide detailed information on the response actions taken, and provide advice regarding medical attention necessary for exposed individuals.

3.17.3.3 State EPCRA Agency

The Contractor may call the Colorado EPCRA agency for additional information about EPCRA requirements.

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FUGITIVE DUST CONTROL PLAN FOR LAND DEVELOPMENT

Regulation No. 1 requires that a fugitive dust control plan be submitted by applicants whose source/activity results in fugitive dust emissions. The control plan must enable the source to minimize emissions of fugitive dust to a level that is technologically feasible and economically reasonable. If the control plan is not adequate in minimizing emissions a revised control plan may be required. The control plan (if acceptable to the Division) will be used for enforcement purposes on the source(s).

Please check the dust control measures which you propose for your activity. The control measures checked will be enforced by the Division. Use separate sheets if more space is needed. Also note items with an asterisk (*). This indicates those measures which will probably be required.

I. Control of Unpaved Roads on Site

)),

* * *A. Watering

))-

(1) Typical watering frequency: _____ Times/Day; or

(2) Maintain ____ % Soil Moisture Content (Specify percentage)

)),

* * *B. Application of Chemical Stabilizer

))-

(1) Frequency of Application: _____

(2) Type of Stabilizer: _____

)),

* * *C. Paving: When: _____ (Attach schedule showing when paving would occur.)

))-

Where: _____

)),

* * *D. Vehicle Speed Control

))-

(1) Speeds limited to ____ mph maximum. Speed limit signs must be posted. (Generally 30 mph is maximum allowable speed on site.)

)),

* * *E. Road Carpet: Type: _____

))-

)),

* * *F. Other (Explain): _____

))-

II. Control of Disturbed Surface Areas

-))),
* * *A. Watering
.)))-
 (1) Typical watering frequency _____ times/day or
 (2) Maintain ____ % soil moisture content.
-))),
* * *B. Application of Chemical Stabilizer
.)))-
 (1) Frequency of application: _____
 (2) Type of stabilizer: _____
-))),
* * *C. Vehicle Speed Control
.)))-
 (1) Speeds limited to _____ mph maximum.
-))),
* * *D. Minimize disturbed area - attach detailed development
 schedule (with map).
))),
* * *E. Revegetation - attach detailed schedule with map (can
 combine with D above).
 (1) Seeding of (annual/perennial) plant (with/without)
 mulch. (Circle appropriate choices.)
 (2) Landscaping
-))),
* * *F. Furrows at right angle to prevailing wind. Depth of furrows
 _____ inches (6" or greater needed)
-))),
* * *G. Compaction of disturbed soil on a daily basis to within 90%
 maximum compaction (as determined by Proctor Test).
 (1) Foundation areas only; or
 (2) All disturbed soil
-))),
* * *H. Wind Breaks (generally required if adjacent to developed
 areas and must be in place prior to overlotting).
 (1) Type
 (a) Solid: Material _____
 (i.e., brick, cement, wood)
 (b) Mesh wind screens (state mesh size): _____
 (c) Snow fence or other fence (specify) _____
 (d) Berms: Height _____ ft.
 (e) Vegetation: Type _____
 Initial Height _____ Spacing _____ ft.
 (f) Other _____
 (2) Description - Show location, prevailing wind, nearby
 developed areas.
-))),
* * *I. Synthetic or natural cover for steep slopes.

.))-

(1) Type _____ (netting, mulching, etc.)

(2) Location _____ (show on map)

* III. Prevention of mud and dirt carryout onto paved surfaces.

+) ,

* *A. Prevention (i.e., gravel entry ways, washing vehicle wheels, cover or do not overfill trucks). _____

.))-

+) ,

* *B. Cleanup of Paved Area

.))-

(1) Frequency: _____ (generally daily)

(2) Method (i.e., street sweeper, hose with water, etc.)

IV. Other (describe in detail) _____

State of _____

**EMERGENCY PLANNING COMMUNITY RIGHT TO KNOW
NOTIFICATION FORM**

Date _____

This is a notification that the facility named below stores or has stored a Hazardous Chemical Substance (HCS) or an Extremely Hazardous Substance (EHS) as listed in Section 302(c), Title III of SARA - Emergency Planning and Community Right-to-Know Act of 1986.

INSTRUCTIONS: Print or type all information, except signature.

		Description	Hazard
_____ Name of Construction		<input type="checkbox"/>	<input type="checkbox"/>
Facility		Fire	Pure
_____ Address			
_____ City		<input type="checkbox"/>	<input type="checkbox"/>
State	Zip Code		Mixture Pressure
_____ Name		<input type="checkbox"/>	<input type="checkbox"/>
and Company of Person Completing Form			Solid Reactivity
CHEMICAL DESCRIPTION		<input type="checkbox"/>	<input type="checkbox"/>
_____ Product			Liquid Acute
Name		<input type="checkbox"/>	<input type="checkbox"/>
Chemical Name(s)			Gas Chronic
_____ CAS			
Number(s)		TYPE OF HAZARDOUS SUBSTANCE	
Maximum Quantity On-Site		<input type="checkbox"/>	<input type="checkbox"/>
_____ Average			EHS
Daily Quantity On Site			CHS

FOR EHS or CHS

Threshold Planning Quantity

Reportable Quantity

Storage Location of HS/EHS

Facility Emergency Coordinator

Telephone Number

Signature of Person Completing Form

CHEMICAL CHARACTERISTICS

SECTION 01440 - CONTRACTOR QUALITY CONTROL

PART 1 - GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 3740	(1992) Evaluation of Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
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ASTM E 329	(1993b) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction
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1.2 PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program, and all costs associated therewith shall be included in the applicable unit prices or lump-sum prices contained in the Bidding Schedule.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 GENERAL

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause entitled "Inspection of Construction." The quality control system shall consist of plans, procedures, and organization necessary to produce an endproduct which complies with the contract requirements. The system shall cover all construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with quality requirements specified in the contract. The project superintendent in this context shall mean the individual with the responsibility for the overall management of the project including quality and production.

3.2 QUALITY CONTROL PLAN

3.2.1 General

The Contractor shall furnish for review by the Government, not later than 10 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause entitled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, test, records, and forms to be used. The Government will consider an interim plan for the first 60 days of operation. Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

3.2.2 Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all construction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents:

a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. The staff shall include a CQC System Manager who shall report to the project superintendent.

b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.

c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters will also be furnished to the Government.

d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with Section 01300 SUBMITTAL PROCEDURES (DURING CONSTRUCTION).

e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. (Laboratory facilities will be approved by the Contracting Officer.)

f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.

g. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures will establish verification that identified deficiencies have been corrected.

h. Reporting procedures, including proposed reporting formats.

i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks and has separate control requirements. It could be identified by different trades or disciplines, or it could be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable feature under a particular section. This list will be agreed upon during the coordination meeting.

3.2.3 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Government reserves the right to require the Contractor to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.2.4 Notification of Changes

After acceptance of the CQC Plan, the Contractor shall notify the Contracting Officer in writing of any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

3.3 COORDINATION MEETING

After the Preconstruction Conference, before start of construction, and prior to acceptance by the Government of the CQC Plan, the Contractor shall meet with the Contracting Officer or Authorized Representative and discuss the Contractor's quality control system. The CQC Plan shall be submitted for review a minimum of 5 calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting shall be prepared by the Government and signed by both the Contractor and the Contracting Officer. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.4 QUALITY CONTROL ORGANIZATION

3.4.1 General

The requirements for the CQC organization are a CQC System Manager and sufficient number of additional qualified personnel to ensure contract compliance. The Contractor shall provide a CQC organization which shall be at the site at all times during progress of the work and with complete authority to take any action necessary to ensure compliance with the contract. All CQC staff members shall be subject to acceptance by the Contracting Officer.

3.4.2 CQC System Manager

The Contractor shall identify as CQC System Manager an individual within his organization at the site of the work who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a graduate engineer, graduate architect, or a graduate of construction management, with a minimum of one year construction experience on construction similar to this contract or a construction person with a minimum of five years in related work. This CQC System Manager shall be on the site at all times during construction and will be employed by the prime Contractor. The CQC System Manager shall be assigned as System Manager but may have duties as project superintendent in addition to quality control. An alternate for the CQC System Manager will be identified in the plan to serve in the event of the System Manager's absence. The requirements for the alternate will be the same as for the designated CQC System Manager.

3.4.3 CQC Personnel

3.4.3.1 CQC Staff

A staff shall be maintained under the direction of the CQC system manager to perform all QC activities. The staff must be of sufficient size to ensure adequate QC coverage of all work phases, work shifts and work crews involved with the construction. These personnel may perform other duties, but must be fully qualified by experience and technical training to perform their assigned QC responsibilities and must be allowed sufficient time to carry out these responsibilities.

3.4.4 Additional Requirement

In addition to the above experience and education requirements the CQC System Manager shall have completed the course entitled "Construction Quality Management For Contractors". This course is periodically offered at the Omaha District, Corps of Engineers Office, Federal Building, Omaha, Nebraska.

There is no charge for the course, however, the Contractor will pay travel and per diem costs. If the CQC manager has not attended the course, he/she will have 90 days from the Notice to Proceed to take it. This is

an eight hour, one-day course. For information and scheduling, contact the Omaha District, Corps of Engineers.

3.4.5 Organizational Changes

The Contractor shall maintain his CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

3.5 SUBMITTALS

Submittals shall be made as specified in Section 01300 SUBMITTAL PROCEDURES (DURING CONSTRUCTION). The CQC organization shall be responsible for certifying that all submittals are in compliance with the contract requirements.

3.6 CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. At least three phases of control shall be conducted by the CQC System Manager for each definable feature of work as follows:

3.6.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work and shall include:

- a. A review of each paragraph of applicable specifications.
- b. A review of the contract drawings.
- c. A check to assure that all materials and/or equipment have been tested, submitted, and approved. (Only coded A or B shop drawing submittals will be considered "as approved." Submittals other than those coded A or B required to be resubmitted will delay the preparatory phase meeting until they have been resubmitted and approved.)
- d. Review of provisions that have been made to provide required control inspection and testing.
- e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.
- f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.
- g. A review of the appropriate activity hazard analysis to assure safety requirements are met.

h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.

i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.

j. Discussion of the initial control phase.

k. The Government shall be notified at least 72 hours in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.6.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

a. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.

b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.

c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.

d. Resolve all differences.

e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.

f. The Government shall be notified at least 24 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.

g. The initial phase should be repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

3.6.3 Follow-up Phase

Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract

requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work which may be affected by the deficient work. The Contractor shall not build upon or conceal non-conforming work.

3.6.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same definable features of work if the quality of on-going work is unacceptable, if there are changes in the applicable CQC staff, onsite production supervision or work crew, if work on a definable feature is resumed after a substantial period of inactivity, or if other problems develop.

3.7 TESTS

3.7.1 Testing Procedure

The Contractor shall perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements. Upon request, the Contractor shall furnish to the Government duplicate samples of test specimens for possible testing by the Government. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a Corps of Engineers approved testing laboratory or establish an approved testing laboratory at the project site. The Contractor shall perform the following activities and record and provide the following data:

- a. Verify that testing procedures comply with contract requirements.
- b. Verify that facilities and testing equipment are available and comply with testing standards.
- c. Check test instrument calibration data against certified standards.
- d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.
- e. Results of all tests taken, both passing and failing tests, will be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test will be given. If approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility will be provided directly to the Contracting Officer. Submit test reports daily. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

3.7.2 Testing Laboratories

3.7.2.1 Capability Check

The Government reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740 and ASTM E 329.

3.7.2.2 Capability Recheck

If the selected laboratory fails the capability check, the Contractor will be assessed a charge of \$500 to reimburse the Government for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the contract amount due the Contractor.

3.7.3 On-Site Laboratory

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

3.8 COMPLETION INSPECTION

3.8.1 Pre-Final Inspection

At the completion of all work or any increment thereof established by a completion time stated in the Special Clause entitled "Commencement, Prosecution, and Completion of Work," or stated elsewhere in the specifications, the CQC System Manager shall conduct an inspection of the work and develop a "punch list" of items which do not conform to the approved drawings and specifications. Such a list of deficiencies shall be included in the CQC documentation, as required by paragraph DOCUMENTATION below, and shall include the estimated date by which the deficiencies will be corrected. Once this is accomplished the Contractor shall notify the Government that the facility is complete and is ready for the Government's "Prefinal" inspection. The Government will perform this inspection to verify that the facility is complete and ready to be occupied. A Government "Prefinal Punch List" will be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected and so notify the Government so that a "Final" inspection with the customer can be scheduled. Any items noted on the "Final" inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph will be accomplished within the time stated for completion of the entire work or any particular increment thereof if the project is divided into increments by separate completion dates.

3.8.2 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, his superintendent or other primary management person and the contracting Officer's representative will be in attendance at this inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups, and major commands may also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon notice from the Contractor. This notice will be given to the Contracting Officer at least 14 days prior to the final acceptance inspection and must include the Contractor's assurance that all specific items previously identified to the Contractor as being acceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause entitled "Inspection of Construction".

3.9 DOCUMENTATION

The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be on an acceptable form that includes, as a minimum, the following information:

- a. Contractor/subcontractor and their area of responsibility.
- b. Operating plant/equipment with hours worked, idle, or down for repair.
- c. Work performed each day, giving location, description, and by whom.
- d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase should be identified (Preparatory, Initial, Follow-up). List deficiencies noted along with corrective action.
- e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.
- f. Submittals reviewed, with contract reference, by whom, and action taken.
- g. Off-site surveillance activities, including actions taken.
- h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.
- i. Instructions given/received and conflicts in plans and/or specifications.

j. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and one copy of these records in report form shall be furnished to the Government daily within 12 hours after the date(s) covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every seven days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

3.10 SAMPLE FORMS

a. Daily quality control report.

b. All tests of piping systems or portions thereof shall be recorded on the "Piping System Test Report."

c. Built-up, Modified bitumen, and Elastomeric single-ply roofing operations, including materials used, shall be reported on "CONTRACTOR'S INSPECTOR ROOFING CHECK LIST AND TEST REPORT."

d. When operation and maintenance instructions for equipment are furnished to Government representatives by the Contractor, the Contractor's representative shall record on a form similar to that attached hereto the applicable data, including the name, organization, and signature of each person attending the instructions.

Sample forms enclosed at the end of this section.

3.11 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the worksite, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

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DAILY QUALITY CONTROL REPORT

[illegible]

Preparatory Inspections: (Identify feature of work and attach minutes).

[illegible][illegible]

7. Submittals Reviewed:

(a) Submittal No.	(b) Spec/Plan Reference	(c) By Whom	(d) Action
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

8. Offsite Surveillance Activities, Including Action Taken:

9. Job Safety: (List items checked, results, instructions and corrective actions taken).

10. Remarks: (Instructions received or given. Conflict(s) in Plans and/or specifications. Delays encountered.).

Contractor's Verification: On behalf of the Contractor, I certify this report is complete and correct, and all materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications, to the best of my knowledge, except as may be noted above.

CQC System Manager

Date

PIPING SYSTEM TEST REPORT

STRUCTURE OR BUILDING _____

CONTRACT NO. _____

DESCRIPTION OF SYSTEM OR PART OF SYSTEM TESTED: _____

DESCRIPTION OF TEST: _____

NAME AND TITLE OF PERSON IN CHARGE OF PERFORMING TESTS FOR CONTRACTOR:

NAME _____

TITLE _____

SIGNATURE _____

I HEREBY CERTIFY THAT THE ABOVE DESCRIBED SYSTEM HAS BEEN TESTED AS
INDICATED ABOVE AND FOUND TO BE ENTIRELY SATISFACTORY AS REQUIRED IN
THE CONTRACT SPECIFICATIONS.

SIGNATURE OF INSPECTOR _____

DATE _____

REMARKS: _____

CONTRACTOR'S INSPECTOR ROOFING CHECK LIST AND TEST REPORT
(For each day of roofing operations)

Date _____ Weather _____

Contract No. _____

All data required to be taken from labels on container:

1. Type of bitumen used with underlayment or insulation and area covered _____

2. Type of bitumen used with base sheet and area covered _____

3. Type of bitumen used for mopping 4-ply _____

4. Type of bitumen used for flood coat or surfacing gravel _____

5. Type of thickness of insulation or underlayment used _____

6. Type of base sheet used _____

7. Type of felt used _____

8. Source of surface gravel and condition, wet, dry, clean _____

9. Roofing sample(s), location and weight _____

10. Bitumen sample furnished to the Government, quantity and type _____

11. Bitumen temperature checks, type of asphalt, time taken, maximum
temperature specified _____

12. Are brooms being used? Yes _____ No _____

13. Bituminous cement used, type and usage _____

14. Area covered _____

Contractor's Approved Authorized
Representative

Quality Control Inspector

OPERATION AND MAINTENANCE INSTRUCTIONS

CONTRACT NO. _____

DESCRIPTION

LOCATION _____

DATE _____

Operation and maintenance instructions were conducted for _____
(Type of Equipment)

_____ required by section_____, paragraph_____

on _____.
(Date)

The following personnel were present:

[illegible]

Instructions were given by _____
(Contractor's Representative)

The personnel identified herein by their signatures certify that they have been instructed in the operation and maintenance of the above-mentioned equipment.

SECTION 01500

SECURITY/WORK AREAS/COORDINATION REQUIREMENTS

Attachments: Attachment 1 - Contractor's Employee's Verification List
Attachment 2 - Figure 3.3, EAL Request Form
Attachment 3 - Free Zone Badges
Attachment 3a- Free Zone

INDEX

1.1 SECURITY REQUIREMENTS.

1.2 WORK AREAS AND ADDITIONAL SECURITY AND COORDINATION REQUIREMENTS

- 1.2.1. SECURITY REQUIREMENTS
- 1.2.2. RESTRICTED AREA
- 1.2.3. FREE ZONE DESIGNATION
- 1.2.4. ENTRY TO AREA
- 1.2.5. ACCESS TO EXISTING BUILDINGS
- 1.2.6. STORAGE OF MATERIALS
- 1.2.7. CONTRACTOR VEHICLES

SECTION 01500

SECURITY/WORK AREAS/COORDINATION REQUIREMENTS

Attachments: Attachment 1 - Contractor's Employee's Verification List
Attachment 2 - Figure 3.3, EAL Request Form
Attachment 3 - Free Zone Badges
Attachment 3a- Free Zone

PART 1 GENERAL

1.1 SECURITY REQUIREMENTS

The Contractor shall be responsible for furnishing to each employee and for requiring each employee engaged on the work to display such identification as may be approved and directed by the Contracting Officer. All prescribed identification shall immediately be delivered to the Contracting Officer, for cancellation upon release of any employees. When the contract involves work in restricted security areas, only employees who are U.S. citizens will be permitted to enter. Proof of U.S. citizenship is required prior to entry. The Contractor shall provide a list of all employees to include: the employee's name, social security account number, date of birth, place of birth, and address. This list shall be submitted in addition to the attached Free Zone Temporary Entry Authority List (EAL). When required by the Contracting Officer, the Contractor shall obtain and submit fingerprints of all persons employed or to be employed on the project.

1.2 WORK AREAS AND ADDITIONAL SECURITY AND COORDINATION REQUIREMENTS.

1.2.1 Security Requirements

The Contractor shall comply with all applicable security requirements. The following paragraphs describe Contractor responsibility. Trailer, fencing, and signs specified herein shall be provided prior to starting site work.

1.2.2 Restricted Area

Portions of this construction project are located in a restricted area. All construction work and construction personnel shall be required to comply with security guidance imposed by the United States Air Force (USAF) in accordance with 2D Communication Squadron's Regulation 207-1. Access to the Buckley ANG Base shall be through the Sixth Avenue Gate. The Contractor will provide the Buckley ANG Base Security Police a copy of a completed "Contractor Employee Verification List," which shall include the names of all subcontractors and supplies, and the names and social security numbers of all employees requiring access to the Base. The list (see Attachment 1) will be revised in its entirety and a new copy provided to the ANG Security Police as persons' or companies' names are added and/or deleted. Access to the ADF Compound shall be through the west construction gate only. Entry control to the ADF Compound will be provided by USAF Security Personnel. Contractor personnel shall be required to display appropriate credentials upon entry and exit. All privately owned vehicles and Contractor equipment will be required to be registered on the base. Vehicle registration for vehicles requiring entry to Buckley ANG Base will be through the Buckley Security Police. Registration will require the applicant to show proof of insurance, a valid drivers license, and current state registration. Anybody needing access to the ADF compound must be a U.S. citizen.

1.2.3 Free Zone Designation

The immediate work area within the restricted area will be designated as a Free Zone. The Contractor shall install a 1 800 mm high welded-wire "stock fence" (barrier) with signs at 12 000 mm intervals around the open (unenclosed) areas of the Free Zone. Enclosed (walled) areas of the Free Zone shall be marked with signs at 12 000 mm intervals. The signs will have **"NO CONTRACTOR ACCESS BEYOND THIS POINT"** on them in 50 mm high red lettering. The background of the signs will be white. In addition, all exits from the Free-Zone area shall be marked with these signs. The Contractor shall also furnish, whenever Contractor personnel are on the site, enough personnel designated as Free Zone monitors to maintain visual contact with everyone in the Free Zone (to include personnel inside the facility under construction) and to ensure compliance with security guidance. The Free Zone monitors shall have a current, valid National Agency check. The Free Zone monitors will not be allowed to perform any other duties. Onsite, off-duty Government personnel with valid National Agency checks may be available to the Contractor for hire.

1.2.4 Entry To Area

Entry to the restricted area is controlled. All Contractor personnel will be issued a Free Zone badge. Contractor must maintain an up-to-date list of employees' names and social security numbers for Free Zone access, this list, also known as the Free Zone Temporary EAL will be updated weekly. Contractor employees employed on the project site for two or more weeks will be required to have a picture ID Free Zone Badge (see Attachment 3, titled "FREE-ZONE BADGES" and Attachment 3a, titled "FREE ZONE"). The badges will be maintained by security personnel at the access gate and shall be obtained by Contractor personnel whenever they enter the area and returned whenever they leave the area. The badges shall not be removed from the controlled area. A request for Free Zone access must be submitted at least three working days prior to the date access is required. The Air Force will provide the guards for the access gate to the controlled area. The gate will be open from 7 a.m. to 4 p.m. Monday through Friday (excluding holidays). Required gate access by the Contractor shall be approved by the Contracting Officer at the weekly coordination meetings specified in Section 00800 SPECIAL CONTRACT REQUIREMENTS. Processing of employees for entry into the Free Zone may require 30 to 45 minutes during peak periods.

1.2.4.1 Personnel Entry at the West Gate

Only Contractor personnel who are listed on the EAL are permitted through the west gate. To enter a name on this list, the Contractor must complete an EAL Request Form (see Attachment 2, Figure 3.3 - EAL Request Form) and submit it through the COE to the Security Police (SP) at least three working days prior to when the individual requires access. Contractor personnel shall be required to display two forms of ID, one being a picture ID (such as a drivers license), to the SP at the west gate. All vehicles and personnel entering the gate are subject to search by SP.

The Contractor shall provide a box which will be used at the West Gate to hold the picture ID badges. The box shall have enough slots in it to hold all the badges for the Contractor and his subcontractors. The slots are to be numbered to correspond with the badge numbers.

1.2.4.2 Restricted Items

No privately owned weapons, tape recorders, cameras, CB radios, alcohol, illegal drugs, or contraband are permitted within the restricted area. If two-way radios, computers, or other receiving/transmitting devices are needed for construction, the Contractor must submit, 30 days prior to use,

a written request through the Contracting Officer to the ADF/FE for approval of the operating frequency. For communication equipment, the request must include the serial number, type and operating frequency, and the name and social security number of the individuals who will be using them.

1.2.5 Access To Existing Buildings

Access to the existing Buildings outside of Free Zone area will be extremely limited and will be allowed only after normal duty hours and only after 10 calendar days prior notification and coordination with the AF Security Office through the Contracting Officer.

1.2.6 Storage of Materials

The Contractor may store materials within the Free Zone only in those areas designated on the drawings for contractor storage except that no materials shall be stored within 15 000 mm of the perimeter fence. There is no requirement for the Contractor to fence his storage area. However, he shall be expected to secure all material from being blown about and damaging existing structures, particularly radomes. Debris shall be kept to a minimum. Location of storage areas in the Free Zone shall be coordinated through the Contracting Officer.

1.2.7 Contractor Vehicles

The Government reserves the right to limit the number of construction vehicles on site, within the ADF perimeter fence. All vehicles permitted inside the the ADF fenced compound shall hve company registration, insurance, and markings. No personally owned vehicles will be allowed on-site.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

- - o O o - -

CONTRACTOR'S EMPLOYEE'S VERIFICATION LIST THIS FORM IS SUBJECT TO THE PRIVACY ACT OF 1974	
CONTRACTOR'S NAME _____	
ADDRESS & PHONE _____	
DATE _____	POINT OF CONTACT _____
SITE LOCATION _____	

CONTRACTOR'S EMPLOYEE'S VERIFICATION LIST THIS FORM IS SUBJECT TO THE PRIVACY ACT OF 1974	
CONTRACTOR'S NAME _____	
ADDRESS & PHONE _____	
DATE _____	POINT OF CONTACT _____
SITE LOCATION _____	

PLEASE LIST NAMES AND COMPANIES IN APHABETICAL ORDER

[illegible]

DATE : _____

AUTHORITY: 10 U.S.C. 8012; 44 U.S.C. 3101; and EO 9397. PRINCIPAL PURPOSE: To record personnel information on an individual whose duty performance requires entry into Air Force restricted areas. ROUTINE USES: The SSAN is used for further identification of an individual. DISCLOSURE IS MANDATORY: Failure to disclose the information would result in not being allowed entry into these areas.

[illegible]

APR 88

FIGURE 3.3 - EAL REQUEST FORM

Free - Zone Badges

```
+))))))))))))))))),
*      BADGE # 1      *
*                               *
*      (Photo)        *
*                               *
*      JOHN D. DOE    *
*      333-33-333     *
*                               *
*      Company Name   *
*      Subcontractor's Name *
*                               *
*      EXPIRES        *
*      31 AUG 94     *
*                               *
.)))))))))))))))))-
```

Badge Requirements:

- * Size: Approximately 56.25 mm by 87.5 mm (2-1/4" by 3-1/2")
- * Color: To be coordinated with the Contracting Officer
- * Style:
 - Each badge will be individually numbered.
 - Number will determine the slot the badge will be stored in.
- * Badge Number:
 - Each badge will be individually numbered
 - Number will determine the slot the badge will be stored in
- * Photo
 - Can be either black & white or color
 - Must clearly show face of the individual
- * Name
 - Capital Letters
 - First, Middle Initial, Last
- * Company Name:
 - Subcontractor's name
- * Expiration date
 - Large capital letters

FREE - ZONE

Badging Procedure

1. Complete Free-Zone Temporary Entry Authority List form.
2. Make badges for individuals on list.
3. Turn in list and badges to Corps of Engineers at least 72 hours prior to the time the individuals need access.

Access Procedures for Badged Individuals (Free Zone Open w/ Monitor)

1. Proceed to West Gate with drivers license.
2. Give driver's license to guard and tell him your badge number (slot number).
3. The guard will:
 - Check driver's license against free-zone badge
 - Give you your free-zone badge
 - Keep your driver's license until you leave area
 - Give you permission to proceed into the area (individual still must be monitored)

Access Procedures for Individuals without a Badge (Free Zone Open w/ Monitor)

1. Proceed to West gate with drivers license or picture ID and show to SP at guard shack.
2. Obtain Free Zone Badge after computer check to assure person is authorized access.
3. SP gives permission to enter the free zone (individual still must be monitored)

SECTION 01560

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 - GENERAL

1.1 REFERENCES

The publications listed below form a part of this section to the extent referenced. The publications are referenced in the text by basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI A92.6 (1979) Self-Propelled Elevating Work Platforms

CORPS OF ENGINEERS (COE)

COE EM 385-1-1 (Latest Version) Safety and Health Requirements Manual

1.2 ADDITIONAL SAFETY MEASURES

1.2.1 OSHA Requirements

The Contractor shall comply with Occupational Safety and Health Act (OSHA) Standards. OSHA Standards are subject to change. It is the Contractor's responsibility to maintain familiarity with OSHA Standards which are current.

1.2.2 Electrical Work

Electrical work will not be performed on or near energized lines or equipment unless specified in the plans and specifications.

1.2.2.1 Upon request by the Contractor, arrangements will be made for de-energizing lines and equipment so that work may be performed. All outages shall be requested through the authorized representative of the Contracting Officer a minimum of 14 days, unless otherwise specified, prior to the beginning of the requested outages. Dates and duration will be specified.

1.2.2.2 Upon approval of the Contracting Officer's representative, the following work may be performed with the lines energized using certified hot line equipment, on lines above 600 volts, when the following conditions have been met.

1.2.2.2.1 Work below the conductors no closer than the clearance required in COE EM 385-1-1 from the energized conductors.

1.2.2.2.2 Setting and connection of new pretrimmed poles in energized lines which do not replace an existing pole.

1.2.2.2.3 Setting and removing transformers or other equipment on poles.

1.2.2.2.4 Installation or removal of hot line connectors, jumpers, dead-end insulators for temporary isolation, etc., which are accomplished with hot line equipment from an insulated bucket truck.

1.2.2.3 Work Plan for Energized Lines

The Contractor shall submit a plan, in writing, describing his method of operation and the equipment to be used on energized lines. Proper certification from an approved source of the safe condition of all tools and equipment will be provided with the plan. The work will be planned and scheduled so that proper supervision is maintained. The Contractor will review his plan with the Contracting Officer's representative prior to being granted permission to perform the work.

1.2.2.4 No work on lines greater than 600 volts will be performed from the pole or without the use of an insulated bucket truck.

1.2.2.5 No work will be done on overbuilt lines while underbuilt lines are energized, except for temporary isolation and switching in accordance with 1.4.2.2.4 hereinbefore.

1.2.3 Rollover Protective Structures

1.2.3.1 R.O.P.S. for rollers and compactors will be certified to meet SAE requirement J1040C.

1.2.3.2 ROPS, as required by paragraph 18.B.20, COE EM 385-1-1, includes self-propelled pulverizers.

1.2.4 Radiation Permits or Authorizations

1.2.4.1 Contractors contemplating the use of radioactive materials or radiation producing equipment while performing work on this contract must obtain written authorization from the Department of the Army or Department of the Air Force, as applicable.

1.2.4.2 A 45-day lead time should be programmed for obtaining this written authorization.

1.2.4.3 When requested, the Contracting Officer's Authorized Representative will assist Contractor in obtaining the required permit or authorization.

1.2.5 Self-Propelled Elevating Work Platforms

All self-propelled elevating work platforms will be designed, constructed, maintained, used, and operated in accordance with the guidance provided in American National Standard for Self-Propelled Elevating Work Platforms (ANSI A92.6-1979) together with any amendments which may be in force at time contract is awarded.

1.2.6 Supporting Systems

To COE EM 385-1-1, 23.B.02, add "Supporting systems, i.e., piling, cribbing, shoring, etc., shall be designed by a qualified person to meet accepted engineering requirements. Submit supporting systems construction details and design calculations, which bear the seal of a licensed professional engineer, for Contracting Officer review."

1.2.7 Telephone

A telephone or equivalent means to immediately initiate emergency response services shall be accessible at the job site at all times while work is underway.

1.2.8 Language

For each work group that has employees who do not speak English, the Contractor will provide a bilingual foreman who is fluent in English and in the language of the workers. The Contractor will implement the requirements of COE EM 385-1-1, paragraphs 01.B.01, 01.B.02, and 01.C.02 through these foremen.

1.2.9 Doctor's Report

The Contractor shall provide, in the event of any Contractor/subcontractor employee lost time injury accident, a doctor's report of examination which states the number of days that the physician recommends the employee recuperate before returning for work. This requirement shall be in addition to other reporting requirements and may, in specific instances, be waived by the Contracting Officer.

1.2.10 Fall Protection

A passive means of fall protection, such as guardrails or catch platforms, will be used on all roofs or wherever the fall distance exceeds 1.8 meters, in accordance with the requirements of Contract Clause "Accident Prevention" and the safety manual, COE EM 385-1-1.

1.3 CONSTRUCTION/ERECTION SUPPORTS AND LOADS

1.3.1 The lateral stability of this structure is dependent on the total completion of all interconnected structural roof, wall, and floor framing/decking systems. The Contractor shall provide and adequately install and maintain all temporary supports such as temporary guys, lateral bracing, falsework, cribbing, and any other type structural supports required for a safe erection operation to maintain stability of the structure until all structural systems are interconnected as required by the contract plans and specifications.

1.3.2 At least 60 days prior to the start of vertical construction and prior to the commencement of structural steel, concrete or masonry walls, elevated floors, and roofs, the Contractor shall submit detailed drawings, catalog data and calculations for all temporary supports as described in paragraph above, which will be used on this contract. These detailed drawings, catalog data, and calculations shall be prepared and certified by a Registered Structural Engineer. The minimum for vertical loads shall be actual dead loads plus a minimum live load of 122 kg per square meters, but use higher live loads if needed due to the Contractor's plan of erection. No load reductions will be allowed. Bracing shall be designed for a minimum wind load of 100 kg per square meters. Wind loadings will not be reduced from the design wind load provided and all temporary supports will be designed with a minimum safety factor of 1.5.

1.3.3 After approval of the temporary support system and calculations, the Contractor shall install and maintain the temporary structural support system in strict compliance with the approved drawings. Daily inspections will be conducted by the Contractor's Quality Control Inspector to assure all supports are installed as approved and properly maintained.

1.3.4 Temporary supports for architectural or structural precast or tilt-up wall panels will be designed as indicated above. Pipe or other approved bracing shall have lateral cross bracing between each pipe support. Tension guy wires or cables will not be acceptable. Bolted or welded connections into the concrete floors and concrete wall panels will be designed with a safety factor of 3.0. Immediately after erecting each concrete wall panel, the bottom of the panel shall be secured by welding the weld plates or by bolting in place. Panels will not be temporarily placed in a vertical position until they are ready to be erected in their final position. If possible, all structural steel will be erected prior to erection of wall panels. If not, the structural steel will be commenced immediately after the last wall panel is set in the smallest section/bay possible. The Contractor shall not start a new wall section/bay until the structural steel is completed in the last section/bay.

1.4 MOWING

Grass and weedy vegetation within the areas utilized by the Contractor, including work areas, administrative areas, and storage areas, shall be kept mowed to control vegetative growth.

1.4.1 Mowing

Vegetation shall be mowed when it reaches a height of 150 mm. Mowing shall be to a height of 76 mm. Mowing shall be accomplished with a rotary mower that leaves the clippings evenly distributed on the soil surface. Mowing shall be accomplished during periods and in such manner that the soil and grass will not be damaged. Towed or self-propelled riding mowers shall not be operated within 1 meter of trees or shrubs. Areas adjacent to trees and shrubs shall be mowed with hand-propelled mowers.

1.4.2 Payment

No separate payment will be made for mowing as required under this section and all costs incurred by the Government for performing such work shall be deducted from the contract.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

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SECTION 01580 - BULLETIN BOARD AND PROJECT SIGN

PART 1 - GENERAL

1.1 SUMMARY

This section covers a project bulletin board, and a project sign, complete.

1.2 PAYMENT

No separate payment will be made for the work covered under this section of the specifications and all costs in connection therewith will be considered as a subsidiary obligation of the Contractor, covered by the contract prices in this contract.

PART 2 - PRODUCTS

2.1 BULLETIN BOARD

Immediately upon beginning of work under this contract, the Contractor shall provide a weatherproof glass-covered bulletin board not less than 915 by 1220 mm in size, for displaying the Equal Employment Opportunity Poster, a copy of the wage decision contained in the contract, Wage Rate Information Poster, and other information approved by the Contracting Officer. The bulletin board shall be located at the site of work in a conspicuous place easily accessible to all employees as approved by the Contracting Officer. Legible copies of the aforementioned data shall be displayed until work under the contract is complete. Upon completion of work under this contract the bulletin board shall be removed by and remain the property of the Contractor.

2.2 PROJECT SIGN

The Contractor shall furnish, erect, and maintain a project sign in the location as hereinbefore specified. The details of construction shall be as directed by the Contracting Officer. The sign shall be constructed of 13 mm (1/2-inch) thick, Grade A-C, exterior type plywood. The signs shall receive 2 coats of an approved white, semigloss, exterior type enamel. Lettering shall be as directed by the Contracting Officer and shall be black semigloss, exterior type enamel. The Contractor shall furnish and apply a red decal of the Corps of Engineer's Castle and the selected Buckley ANG Base insignia decal, or may use a stencil in lieu of a decal provided the dimensions are the same. The decal, if used, shall receive a thin coat of clear spar varnish after application. If a stencil is used, the castle and insignia shall be painted with approved colors in semigloss, exterior type enamel. Upon completion of work under this contract, the project sign shall be removed from the job site and shall remain the property of the Contractor.

PART 3 - EXECUTION

3.1 GENERAL

Immediately upon beginning of work under this contract, the Contractor shall accomplish the work covered under this section of the specifications. Location of the bulletin board and the project sign shall be as determined by the Contracting Officer.

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SECTION 01700
CONTRACT CLOSEOUT

PART 1 - GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01300 SUBMITTAL PROCEDURES (DURING CONSTRUCTION).

SD-04 Drawings\

Equipment Room Drawings\; *GA*\.

Record Drawings\; *GA*\.

SD-06 Instructions\

Operations and Maintenance Manuals\; *GA*\.

SD-07 Schedules\

Equipment List\; *FIO*\.

Equipment list shall be all inclusive.

Guarantees\; *FIO*\.

A list of guaranteed equipment with copy of guarantees shall be provided.

1.2 EQUIPMENT ROOM DRAWINGS

The Contractor shall prepare and submit room plans for all mechanical, electrical, and communication rooms or similar areas.

1.2.1 Assembled Submittal

Submittals describing the various mechanical and electrical equipment items which are to be installed in the above described area(s) shall be assembled and submitted under Category I concurrently and accompanied by the room plans.

1.2.2 Scaled Details

Plans, consolidated for all trades shall be to scale and shall show all pertinent structural features and other items such as doors, windows, and cabinets required for installation and which will affect the available space. All mechanical and electrical equipment and accessories shall be shown to scale in plan and elevation and/or section in their installed positions. All duct work and piping shall be shown.

1.3 CONTRACTOR FURNISHED EQUIPMENT DATA

At or before 30 days prior to final inspection and acceptance of the work, the Contractor shall submit the data mentioned in the following subclauses.

1.4 EQUIPMENT LIST

1.4.1 Equipment in Place

An itemized equipment list showing unit retail value and nameplate data including model number, size, manufacturer, etc., for capital equipment and other nonexpendable supplies of a movable nature that are not affixed as an integral part of the facility and may be removed without destroying or reducing the usefulness of the facility. Some examples are spare parts, special tools, manufacturing equipment, maintenance equipment, instruments, installed under this contract.

1.4.2 Installed Building Equipment

An itemized equipment list showing unit retail value and nameplate data including model number, size, manufacturer, etc., for items of equipment and furnishings, including material for installation thereof, which are required to make the facility usable and are affixed as a permanent part of the structure. Some examples are plumbing fixtures, laboratory counters and cabinets, kitchen equipment, mechanical equipment, electrical equipment, and fire protection systems installed under this contract.

1.5 GUARANTEES

A list of all equipment items which are specified to be guaranteed accompanied by a copy of each specific guarantee therefor. For each specific guaranteed item the name, address, and telephone number shall be shown on the list for subcontractor who installed equipment, equipment supplier or distributor, and equipment manufacturer. Completion date of the guarantee period shall correspond to the applicable specification requirements for each guaranteed item.

1.6 RECORD DRAWINGS

See Section 01710 RECORD DRAWINGS.

1.7 WARRANTY REQUIREMENTS

See Section 01720 WARRANTY OF CONSTRUCTION.

1.8 OPERATION AND MAINTENANCE MANUALS

See Section 01730 FACILITY OPERATION AND MAINTENANCE MANUALS.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

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SECTION 01710

RECORD DRAWINGS

1/95

INDEX

PART 1 GENERAL

- 1.1. SUMMARY
- 1.2. DEFINITIONS
- 1.3. GENERAL REQUIREMENTS
- 1.4. PAYMENT
- 1.5. TRANSMITTAL OF RECORD DRAWINGS
- 1.6. PROCEDURE
- 1.7. TITLE BLOCKS
- 1.8. PROCEDURES FOR POSTING MODIFICATION CHANGES TO
DRAWINGS
- 1.9. WORD ABBREVIATIONS
- 1.10. LEGEND SHEETS
- 1.11. CONTRACTOR SHOP DRAWINGS
- 1.12. INDEXING OF DRAWINGS

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

- 3.1. GENERAL
- 3.2. SITE WORK
- 3.3. STRUCTURAL
- 3.4. MECHANICAL
- 3.5. ELECTRICAL

SECTION 01710

RECORD DRAWINGS

1/95

PART 1. GENERAL

1.1. SUMMARY

This section applies to revising the approved 100 percent corrected design of the project to show as-built conditions.

1.2. DEFINITIONS

The definitions listed below form a part of this specification.

1.2.1. Red-Line Drawings

Contract drawings marked-up to show actual work performed to include necessary sketches, modification drawings, shop drawings and notes. Green ink is used to indicate work deleted from the contract. Red ink is used for additions and deviations from the contract.

1.2.2. Record Drawings

Professionally finished reproducible Drawings developed from the original 100 Percent corrected design drawings that include all of the information from the Red-Line Drawings and suitable for half-size reproduction.

1.2.3. Not Used.

1.2.4. Not Used.

1.2.5. Black-Line Drawings

Paper drawings reproduced from reproducible drawings.

1.2.6. Full-Size Drawings

24" by 36" nominal size drawings with all details visually readable.

1.2.7. Half-Size Drawings

None.

1.2.8. Modification Circle

A circle with a horizontal line through the center of the circle. The top half will contain the letter "P" with the bottom half containing the Modification number. The lettering standard will be 120/6 WRICO or similar.

1.3. GENERAL REQUIREMENTS

The work includes creation of reproducible Record Drawings that will become the permanent as-built drawings of the construction. The Contractor is responsible for development of the Record Drawings. The record drawings shall include all major features of the work and all details to the same level as the original contract set of drawings. All changes from the contract drawings, including but not limited to modifications, letters of clarification, changes which were made during construction, and/or additional information which was uncovered during construction, shall be accurately and neatly recorded on the Record Drawings using the same symbology, terminology, and general quality as the original set of contract drawings. All sheets affected by a change shall be revised. The transmittal requirements for the Record Drawings shall be shown as events on the Contractor prepared progress chart or network analysis system (NAS), whichever is applicable.

1.4. PAYMENT

The Price Proposal Schedule indicates an amount that will be retained until completion of all work for the Record Drawings. Payment for this item will not be made until the Contracting Officer has received the final Record Drawings and found them acceptable.

1.5. TRANSMITTAL OF RECORD DRAWINGS

The Contractor shall produce Final Drawings on AutoCADD Release 12 without "clouding". The Final Drawings shall include all changes. The Final Drawings shall be received by the Contracting Officer's Representative no earlier than the day of acceptance of the project and no later than thirty (30) days after the date on the acceptance letter unless otherwise directed by the Contracting Officer. The Final Drawings shall consist of the following: 1) Two (2) sets of CADD files on 87.5 mm (3-1/2 inch), 1.44 MB floppy disks, 2) One set of full size reproducible Record Drawings, 3) One full-size set of the Black-Line Drawings, and 4) Two sets of full-size Red-Line Drawings (One set for the Denver Resident Office and One set for the ADF Facility).

1.6. PROCEDURE

The Contractor shall create two sets of full-size Red-Line Drawings to fully indicate as-built conditions. The Red-Line Drawings shall be maintained at the site, in a current condition until the completion of the work and shall be available for review by the Contracting Officer's Representative at all times. All as-built conditions shall be on the Red-Line Drawings within two (2) days after the work activity is completed or shall be entered on the deficiency tracking system (see Section 01440, CONTRACTOR QUALITY CONTROL).

1.7. TITLE BLOCKS

The contract number and the specification number shall be shown on all sheets. "RECORD DRAWING" shall be added below the title block on all

sheets. All modifications to the contract shall be posted in ascending order. The top line of the revisions box shall state "REVISED TO SHOW AS-BUILT CONDITIONS" and dated. All modifications to all plans, sections, or details, shall have a modification number placed in the revisions box under column entitled "Symbol". The statement "GENERAL REVISIONS" may be used when applicable. The date to be added in the revision box for modifications is found in block 6 of Form 3938 or block 3 of Form SF-30.

1.8. PROCEDURES FOR POSTING MODIFICATION CHANGES TO DRAWINGS

1.8.1. Follow directions in the modification for posting descriptive changes.

1.8.2. A Modification Circle shall be placed at the location of each deletion.

1.8.3. The highest modification number on the sheet should be shown in the modification circle in the "DATE" and "DRAWING CODE" boxes of the title block.

1.8.4. For all new details or sections which are added to a drawing, place a Modification Circle by the detail or section title.

1.8.5. For minor changes to a drawing place a Modification Circle by the area changed on the drawing (each location).

1.8.6. For major changes to a drawing place a Modification Circle by the title of the affected plan, section or detail title (each location).

1.8.7. For changes to schedules on drawings, a Modification Circle shall be placed either by the schedule heading or by the change in the schedule.

1.8.8. The Modification Circle size shall be 1/2-inch diameter unless the area where circle is to be placed is crowded. Use smaller size circle for crowded areas.

1.8.9. Enclose each change within a cloud.

1.8.10. Identify each change with its modification number.

1.9. WORD ABBREVIATIONS

Abbreviations shown on the abbreviation sheet shall be used to describe all work items. Additional word abbreviations, not found on the abbreviation sheet, but necessary to describe the work shall be properly identified and incorporated with the other standard word abbreviations.

1.10. LEGEND SHEETS

Additional symbols, properly identified, necessary to depict any additional work items, shall be added to the legend sheet or supplemental legend. Those projects that do not have legend sheets may use supplemental legends on each sheet where symbol is shown.

1.11. CONTRACTOR SHOP DRAWINGS

Contractor shop drawings and/or fully developed project plans, prepared by others and furnished for a site adaptation, shall be carefully reviewed for technical adequacy and for conformance to criteria furnished. Shop drawings which supersede data on the contract plans, shall be incorporated as required into and/or provided with the Record Drawings. Design plans prepared by others shall identify it's designer's name on the Record Drawings.

1.12. INDEXING OF DRAWINGS

The index shall be placed on the second sheet (Location Plan) of the set of drawings except for projects for which the final set of drawings will exceed 40 sheets. For such projects, a separate full-size Index Drawing shall be provided.

PART 2. PRODUCTS (Not Applicable)

PART 3. EXECUTION

Record drawings shall include as-built information to the same level of detail as shown on the original 100 Percent corrected design details, unless otherwise specified. The Contractor shall provide any additional Full-Size Drawings as required to display all the details.

3.1. GENERAL

Record Drawings shall include the following:

3.1.1. All changes and modifications to the contract.

3.1.2. Where 100 Percent corrected design drawings or specifications allow for options, include only the option selected. The option selected and actually constructed shall be shown on the Record Drawings.

3.1.3. Systems designed or enhanced by the Contractor such as HVAC control system, fire alarm system fire sprinkler system, irrigation sprinkler system, etc. shall be included in the Record Drawings.

3.1.4. The Contractor shall be required to as-built by field survey all new exterior work. See Section 02200 SITE WORK DESIGN REQUIREMENTS, paragraph "Field Survey," for requirements.

3.2. SITE WORK

3.2.1. Utilities

All utilities shall be shown whether active, inactive, shown on the original contract drawings, or found on-site. The type of utility, location, general direction, size, material make-up and depth shall be shown. The location and description of any utility line or other installations of any kind known to exist within the construction area shall be shown. The location shall include dimensions to permanent features.

3.2.2. Structures

Structures above and below ground shall be shown. The size, material make-up, location, height, and/or depth shall be shown. Manholes shall show rim elevation and invert elevations as applicable. Power poles shall show electrical equipment and voltage rating.

3.2.3. Grades

Grade or alignment of roads, structures, or utilities shall be corrected if any changes were made from the contract drawings. Elevations shall be corrected if changes were made in site grading.

3.3. STRUCTURAL

Shop drawing that deviate from the 100 percent corrected design drawings shall be incorporated in the Record Drawings.

3.4. MECHANICAL

3.4.1. Ductwork

Ductwork shall be shown to reflect actual installation and duct size. Ductwork routing changes shall be shown.

3.4.2. Plumbing, Heating, and Chilled Water Systems

All plumbing, heating, and chilled water systems, including piping and equipment shall be shown to reflect the type of material, size and the route or location.

3.4.3. HVAC Controls

All HVAC control diagrams in 100 percent corrected design drawings shall be revised to reflect as-built conditions, setpoints, etc.

3.5. ELECTRICAL

3.5.1. Panels

All 100 percent corrected design drawing panel schedules shall be revised to show as-built conditions. Home-run circuit designation on electrical drawings shall accurately correspond to the as-built panel schedules.

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SECTION 01720

WARRANTY OF CONSTRUCTION

INDEX

- 1.1 WARRANTY OF CONSTRUCTION
- 1.2 ADDITIONAL WARRANTY REQUIREMENTS
- 1.3 SUBMITTALS
- 1.4 EQUIPMENT WARRANTY IDENTIFICATION TAGS.

PART 1 GENERAL

1.1 WARRANTY OF CONSTRUCTION

1.1.1 Foremost and in addition to any other warranties in this contract, the Contractor warrants, except as provided in paragraph 1.9 of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, design furnished, or workmanship performed by the Contractor or any subcontractor or supplier at any tier.

1.1.2 This warranty shall continue for a period of 1 year from the date of final acceptance of the work. If the Government takes possession of any part of the work before final acceptance, this warranty shall commence for that part on the date of possession and continue for a period of 1 year.

1.1.3 The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy, at the Contractor's expense, any damage to Government-owned or controlled real or personal property, when that damage is the result of--

- a. The Contractor's failure to conform to contract requirements; or
- b. Any defect of equipment, material, workmanship, or design furnished by the Contractor.

1.1.4 The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause.

1.1.5 The Contractor's warranty with respect to work restored, repaired or replaced will run for 1 year from the date of restoration, repair or replacement. This provision applies equally to all items restored, repaired, or replaced under paragraph 1.3 and 1.4 above.

1.1.6 The Government will notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect, or damage. Repair work necessary to correct a warranty condition which arises to threaten the health or safety of personnel, the physical safety of property or equipment, or which impairs operations, habitability of living spaces, etc., will be performed by the Contractor on an immediate basis as directed verbally by the Government. Written verification will follow verbal instruction.

1.1.7 Failure of the Contractor to respond as verbally directed will be cause for the Contracting Officer or his authorized representative to have the warranty repair work performed by others and to proceed against the Contractor as outlined in the paragraph 2.1.2. If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the Government shall have the right to replace, repair, or

otherwise remedy the failure, defect, or damage at the Contractor's expense, as outlined in paragraph 1.2.1.1.

1.1.8 With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall-

a. Obtain all warranties that would be given in normal commercial practice;

b. Require all warranties to be executed, in writing, for the benefit of the Government.

1.1.9 Unless a defect is caused by the negligence of the Contractor or Subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defects of material or design furnished by the Government nor for the repair of any damage that results from any defect in Government-furnished material or design.

1.1.10 This warranty shall not limit the Government's right under the Inspection and Acceptance Clause of this contract with respect to latent defect, gross mistakes, or fraud.

1.2 ADDITIONAL WARRANTY REQUIREMENTS

1.2.1 Performance Bond

1.2.1.1 It is understood that the Contractor's Performance Bond will remain effective for one (1) year from the date of acceptance.

1.2.1.2 If either the Contractor or his representative doesn't diligently pursue warranty work to completion, the contractor and surety will be liable for all costs. The Government, at its option, will either have the work performed by others or require the surety to have it done. Both direct and administrative costs will be reimbursable to the Government.

1.2.2 Pre-Warranty Conference

1.2.2.1 Prior to contract completion and at a time designated by the Contracting Officer or his authorized representative, the Contractor shall meet with the Contracting Officer or his authorized representative to develop a mutual understanding with respect to the requirements of the Paragraph: WARRANTY OF CONSTRUCTION. Communication procedures for Contractor notification of warranty defects, priorities with respect to the type of defect and other details deemed necessary by the Contracting Officer or his authorized representative for the execution of the construction warranty shall be established/reviewed at this meeting.

1.2.2.2 In connection with these requirements and at the time of the Contractor's quality control completion inspection, the Contractor will furnish the name, telephone number and address of the service representative which is authorized to initiate and pursue warranty work action on behalf of the Contractor and surety. This single point of contact will be located within the local service area of the warranted construction, will be continuously available, and will be responsive to Government inquiry on warranty work action and status. This requirement does not relieve the Contractor of any Contractual responsibilities in connection with the paragraph: WARRANTY OF CONSTRUCTION.

1.2.2.3 Local service area is defined as the area in which the contractor or his representative can meet the response times as described in paragraph

2.4 and in any event shall not exceed 200 miles radius of the construction site.

1.2.3 Equipment Warranty Identification

The Contractor shall provide warranty identification tags on all mechanical and electrical equipment installed under this contract. Tags and installation shall be in accordance with the requirements of Paragraph: EQUIPMENT WARRANTY IDENTIFICATION TAGS.

1.2.4 Warranty Service Calls

The Contractor or his local service representative will respond to the site, to a call within the time periods as follows: Four (4) hours for Heating, Air Conditioning, Refrigeration, Air Supply and Distribution, and Critical Electrical service Systems and Twenty-Four (24) hours For All Other Systems.

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01300 SUBMITTAL PROCEDURES (DURING CONSTRUCTION):

SD-01 Data\

Service Representative\; *FIO*\.

Names of service representatives that will make warranty calls along with the day, night, weekend and holiday contacts for response to a call within the time period specified.

1.4 EQUIPMENT WARRANTY IDENTIFICATIONS TAGS

1.4.1 General Requirements

The Contractor shall provide warranty identification tags on all Contractor and government furnished equipment which is Contractor installed.

1.4.1.1 The tags and information shall be similar in format and size to the exhibits provided by this specification, and shall be suitable for interior and exterior locations, resistant to solvents, abrasion, and to fading caused by sunlight, precipitation, etc. These tags shall have a permanent pressure- sensitive adhesive back, and shall be installed in a position that is easily (or most easily) noticeable. If the equipment surface is not suitable for adhesive back, Contractor shall submit his alternative to the Contracting Officer's Authorized Representative for review and approval. Contractor furnished equipment that has differing warranties on its components will have each component tagged.

1.4.1.2 Tags for Warranted Equipment: The tag for his equipment shall be similar to the following:

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+))))))))))))))))))))))))))))))))))))),
*          EQUIPMENT WARRANTY                      *
*
*          CONTRACTOR FURNISHED EQUIPMENT          *
*
*
* MFGS))))))))))))))Q  MODEL NO.S))))))))
*
* SERIAL NO.S))))))))))))))))))))))))))))))
*
* CONTRACT NO.S))))))))))))))))))))))))))))))
*
* CONTRACTOR NAMESS))))))))))))))))))))))))))
*
* CONTRACTOR ADDRESSS))))))))))))))))))))))))
*
* CONTRACTOR TELEPHONES))))))))))))))))))))))
*
* CONTRACTOR WARRANTY EXPIRESS))))))))))))
*
* IN CASE OF WARRANTY ACTION FIRST CONTACT
*
*          [DEH] [BCE] AT [TELEPHONE NUMBER]
*
*
*))))))))))))))))))))))))))))))))))))-

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+))))))))))))))))))))))))))))))))))))))))))))))))))))),
*
*                               EQUIPMENT WARRANTY                               *
*
*                               GOVERNMENT FURNISHED EQUIPMENT                     *
*
* MFG _____ MODEL NO. _____ *
*
* SERIAL NO. _____ *
*
* CONTRACT NO. _____ *
*
* DATE EQUIP PLACED IN SERVICE _____ *
*
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1.4.1.3 If the manufacturer's name (MFG), model number and serial number are on the manufacturer's equipment data plate and this data plate is easily found and fully legible, this information need not be duplicated on the equipment warranty tag. The Contractor's warranty expiration date and the final manufacturer's warranty expiration date will be determined as specified by the Paragraph "WARRANTY OF CONSTRUCTION".

1.4.2 Execution

The Contractor will complete the required information on each tag and install these tags on the equipment by the time of and as a condition of final acceptance of the equipment. The Contractor shall be responsible for scheduling acceptance inspection with the Contracting Officer (verbal and written notification required). If this inspection is delayed by the Contractor, the Contractor shall, at his own expense, update the in-service and warranty expiration dates on these tags.

1.4.3 Equipment Warranty Tag Replacement

Under the terms of this contract, the Contractor's warranty with respect to work repaired or replaced shall run for one year from the date of repair or replacement. Such activity shall include a data warranty identification tag on the repaired or replaced equipment. The tag shall be furnished and installed by the Contractor, and shall be similar to the original tag, except that it should include the scope of repair and that the contractor's warranty expiration date will be one year from the date of acceptance of the repair or replacement. In the case of repair, the repair only will be covered by the extended warranty. In the case of replacement of a component, the component only will be covered by the extended warranty. In these cases, the original tags will not be removed, but an additional tag will be installed for the repair or component replacement.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

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SECTION 01730

FACILITY OPERATION AND MAINTENANCE MANUALS

PART 1 GENERAL

This specification covers requirements for the development of approved manuals used for maintenance and operation of the facility. Manuals shall be comprehensive, self-contained and tailored for the facility.

The intent of the O&M Manuals is to promote and maximize the efficiency, economy, safety, and effectiveness of the life cycle operation, maintenance, and repair of the facility. Comprehensive, self-contained manuals shall include all of the building's interior systems, plus the exterior portions of systems which support the buildings. The manuals shall cover all system installations provided in this contract and shall be in sufficient detail to facilitate normal maintenance and troubleshooting by persons with minimum experience with the installed equipment.

1.1 DESCRIPTION OF WORK

The Contractor shall prepare approved sets of Operation and Maintenance (O&M) Manuals. The manuals shall include all of the building's mechanical and electrical systems. The manuals shall include system descriptions, locations, startup procedures, normal operation, emergency operation and scheduled and unscheduled maintenance. Appendices to be prepared shall include equipment manuals (compilation of vendor data) and manufacturer's warranties. In addition, a Training Course with associated Training Manuals shall be provided.

1.2 SUBMITTALS AND REVIEWS

Government approval is required for submittals with a "GA" designation. The following shall be submitted in accordance with Section 01300 SUBMITTAL PROCEDURES (DURING CONSTRUCTION):

SD-07 Schedules\

Training Course Schedule\; *GA*\.

Proposed schedule for Training Course, at least 30 days prior to the start of related training. Submittal shall include a copy of the classroom training analysis.

SD-08 Statements\

Qualifications\; *GA*\.

Within 30 days after Notice to Proceed the Contractor shall submit the qualifications of the technical writing firm. Comments will be provided within 14 days of receipt of the submittal.

SD-19 Operation and Maintenance Manuals\

Format and Outline\; *GA*\.

Within 90 days after Notice to Proceed the Contractor shall submit a proposed detailed outline, an example of the proposed format, sample of manual covers, and listing of documents, data, and other information to be used in preparation of the manuals. Review comments will be provided to the Contractor within 30 days of receipt of this submittal.

Draft Copies\; *GA*\.

Two draft copies of the manuals shall be submitted for approval 120 calendar days before scheduled completion date. Review comments will be provided to the Contractor within 30 days of receipt of this submittal.

Draft Manual for Review\; *GA*\.

One final copy of the manuals shall be submitted for approval within 60 calendar days before scheduled completion date. Review comments will be provided to the Contractor within 14 days of receipt of this submittal.

Final Manuals\; *GA*\.

The complete original final Operation and Maintenance Manuals with all review comments addressed, shall be furnished to the Aerospace Data Facilities Engineer not less than 14 days prior to Government acceptance of the facilities.

Four (4) copies of the final Operation and Maintenance Manuals, with all review comments addressed, shall be furnished to the Contracting Officer not less than 14 days prior to Government acceptance of the facilities. Copies shall be second generation copies of the originals only. The Contracting Officer may reject submittals based on the clarity of copies within the manuals.

Training Manuals

A training course in the maintenance and operation of the systems specified, shall be provided. The training shall be oriented to the specific systems being installed under this contract.

Format and Outline of Training Manuals\; *GA*\.

A minimum of six (6) months before scheduled training, the Contractor shall submit a proposed detailed outline, an example of the proposed format, sample of manual covers, and listing of documents, data, and other information to be used in preparation of the training manuals. Review comments will be provided to the Contractor within 30 days of receipt of this submittal.

Draft Copies of Training Manuals\; *GA*\.

Two draft copies of the training manuals shall be submitted for approval 120 calendar days before scheduled training date. Review comments will be provided to the Contractor within 30 days of receipt of this submittal.

Draft Training Manual for Review\; *GA*\.

One final copy of the training manuals shall be submitted for approval within 60 calendar days before scheduled training date. Review comments will be provided to the Contractor within 14 days of receipt of this submittal.

Final Training Manuals\; *GA*\.

The complete original final Training Manuals with all review comments addressed, shall be furnished to the Aerospace Data Facilities Engineer not less than 14 days prior to Government acceptance of the facilities.

Four (4) copies of the final manual, with all review comments addressed, shall be furnished to the Contracting Officer not less than 14 days prior to Government acceptance of the facilities. Copies shall be second generation copies of the originals only. The Contracting Officer may reject submittals based on the clarity of copies within the manuals.

1.3 PAYMENT

The Price Proposal Schedule indicates the amount that will be retained until completion of all work for the Operation and Maintenance Manuals, Training Manuals, and Training. Payment for these items will not be made until the Contracting Officer has received the final Operation and Maintenance Manuals and Training Manuals and found them acceptable, and all and Training has been successfully completed.

1.4 O&M MANUAL TECHNICAL WRITER

The Contractor shall obtain the services of a firm experienced in technical writing to prepare the Operation and Maintenance Manuals. The Contractor shall submit to the Contracting Officer for approval the name of the firm, its qualifications, similar recent jobs (including samples), and the qualifications of key personnel. The Contracting Officer may reject any firm which cannot show that it has technical writing experience and qualified personnel.

1.5 REQUIREMENTS, ORGANIZATION, AND GENERAL CONTENTS

1.5.1 Technical Accuracy

The manual shall be proofed to accurately describe the system, equipment, and functions. Technical errors or conflicting information will constitute reason for resubmittal of the manual.

1.5.2 Preparation

All information shall be bound in organized volumes. Material shall be written, rewritten, or reproduced to the extent necessary to properly organize and integrate it, and to provide complete and intelligible instructions. Information contained in all manuals, including copies, shall be clear and legible. The Contractor shall create the Operations and Maintenance Manuals using manufacturer's and other's data.

1.5.2.1 Organization

The material shall be organized and assembled according to systems and subsystems, with tab sheets between each section. Contents shall be indexed, tabulated, and suitably cross-referenced to and between various volumes. The manuals shall be bound in hardback, loose leaf binders. The binding shall be pin type. The covers shall be equal to flexible "lexide," or plastic type.

a. Use manufacturers' brochures, handbooks, parts lists, and similar documents.

b. Fold manufacturers' oversized brochures to 212 mm by 275 mm (8-1/2" by 11") to permit insertion between covers of volumes.

c. Assemble O&M instructions in several volumes; no single volume shall be thicker than 50 mm (2 inches).

d. Text. The text shall be specific, concise, and clearly worded to be easily understood by personnel involved in the operation, maintenance, and repair of the equipment. The manual shall be oriented toward operation, maintenance, and repair of the equipment by the operators and maintenance and repair trades without the assistance of a manufacturer's representative.

Descriptive matter and theory should be limited to those technical details which are essential to a proper understanding of the system or equipment for satisfactory operation, maintenance, and repair. (Also see paragraph: SUPPLEMENTARY INFORMATION.)

1.5.3 Content

Manuals shall consist of, but not limited to, the following data; and shall provide adequate instructions for installation, operation, maintenance, repair, and parts data for logistics support of the systems and equipment items.

- Front matter
- General information Operation
- Emergency Operation
- Preventative maintenance Troubleshooting
- Corrective maintenance
- Lubrication instructions Drawings
- Illustrations Photographs
- Diagrams
- Notes, cautions, and warnings Parts Lists

Test Results

Distribution system schematics

Showing location of balancing devices, dampers, valves, etc.

Indicate flow rates, design temperatures, etc.

Contacts or identification of the local representative for each item of equipment

Copies of warranties, organized and referenced by component

Copy of the Engineers Design Analysis

The manual shall provide system description, purpose, capabilities, function, physical location within the facility, power distribution, signal distribution (electrical or otherwise), system operation accounting for modes of operation, system performance checks, and diagrams necessary for a full system treatment.

1.5.3.1 Front Matter

Front matter shall normally be included as cover, title page, and table of contents. Succeeding volumes of a multi- volume manual shall repeat front matter.

a. Cover

The facility shall be identified on the cover by the name of the facility, name of the activity, and construction contract number. If the manual is in more than one volume, the volume number, the total number of volumes in the set, and the general content shall be included on each cover. Covers for multiple volumes for a single facility shall be similar. If there is a security classification it shall be included.

b. Title Page

The title page shall show the name of the preparing firm, the contract number, and the month and year of publishing. In addition, multi-volume manuals shall show the general content on the title page.

c. Table of Contents

The table of contents shall be consistent with the manual format.

1.5.3.2 General Information

The manual shall include an overall description and purpose of the system or equipment. The functioning of the system or equipment and of its component parts shall be described. The description shall include the intended use, capabilities, and limitations of the system or equipment. If the manual covers more than one model of a system or equipment, or systems or equipment modified by field change, a description of the differences shall be provided. Quick reference data shall be included and shall describe technical or design characteristics of the equipment. Examples of such data are:

Specification sheets showing capacity data, catalog cuts, and parts lists.

Descriptive (nameplate) data necessary to identify manufacturer, type, model, and the purpose of the facility, equipment, or subsystem which the manual covers.

Functional characteristics, s

Power equipment

Modes of operation

Power output

Frequency

Pulse characteristics

Sensitivity: selectivity

Capabilities, such as:

Rated ranges

Speed

Resolution

Accuracy

Rated outputs, such as:

Wattages

Voltages

Horsepower

Gallons per minute

Footcandle or lumens

Amperages

Phase

Power factor

Lumens/Watt

Rated life in hours

British thermal units

Cubic feet per minute

Coefficient of utilization for lamps

Interrupting capacity, RMS, AMP, asymmetrical

Special characteristics, such as: Operating temperatures Pressure Humidity Tolerances Unusual materials or material applications.

1.5.3.3 Operation

Operating instructions outlining the step-by-step procedures required for system startup, operation, and shutdown shall be furnished. Include routine and emergency procedures (manual, automatic, local, and remote), and safety precautions. When the equipment can be turned on-off from an operating console, limits to be observed in the starting, operating, stopping, or shutting down of the equipment or system shall be provided. When the equipment turn-on is complicated, the operator shall be referred to the turn-on and checkout chart. Adequate illustrative material shall be provided to identify and locate operating controls and indicating devices. The function of each operating control and indicating device shall be included.

1.5.3.4 Emergency Operation

Emergency operating instructions shall include alternate procedures to be followed when normal operation is not possible because of emergency conditions, such as power failure, control air failure, lubricating oil failure, or partial failure of requirements. Emergency operating instructions and procedures shall be located for quick and ready references.

1.5.3.5 Preventive Maintenance

Maintenance instructions listing routine preventive maintenance procedures, possible breakdowns, repairs, and trouble-shooting guide shall be furnished. Use of special tools, materials, and test equipment shall be specified, including model/type designation, as appropriate. The following procedures shall be stressed, if applicable.

a. Cleaning and Lubrication

Periodic cleaning and lubrication information, types of cleaning agents or lubricants required, recommended intervals, such as monthly, quarterly, semiannually, or hours of operation. Application points, type of lubricant and capacity (required amounts) shall be identified. Pictorial format for lubrication is desirable. Cleaning and lubrication required during repair, replacement, and reassembly shall also be covered.

b. Inspection

Instructions, including scheduling for inspection of equipment for damages and wear shall be included. Tabular or chart form is preferred and shall include, where applicable, allowable service limits, wear, backlash, end play, length and depth of scoring, and balance. These instructions shall be sufficiently complete to serve as standards by which experienced technicians may determine when parts may be continued in use and when they must be replaced.

c. Performance and Adjustment Verification

Instructions shall be included for verification of the accuracy of equipment measurement devices needed to restore the equipment to its original state. These instructions shall provide complete step-by-step procedures which will enable the user to check the accuracy of the indications or readings. The location of test connections and the values expected at these points shall be included, preferably in illustrated form. Adjustment of built-in self-test features shall be included. Data shall include a list of the additional equipment required to accomplish the verification, such as temperature, vacuum, pressure, hydraulic, or pneumatic gages; voltmeters; ammeters, or frequency meters. The listing shall show methods of use or application, range scales, and specific minimum tolerances or percentages of accuracy. This generation is preferred in tabular format. Such headings as the following may be used:

NOMENCLATURE	PART/MODEL NO.	APPLICATION	RANGE	ACCURACY
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d. Exercising Standby Equipment

The frequency and special procedures for exercising standby equipment shall be included, as applicable.

1.5.3.6 Troubleshooting and Diagnostic Guidance

Failures that might occur during operation of equipment shall be listed. Troubleshooting data and fault isolation techniques shall state (a) the indication or symptom of trouble, (b) the sequential instructions necessary, including test hookups, to determine the cause, (c) special tests and test equipment, and (d) methods for returning the equipment to operating conditions. Information may be in chart form or in tabular format with appropriate headings.

1.5.3.7 Corrective Maintenance

Instructions shall be included, but not limited to, all removal, repair adjustment, and replacement procedures. Exploded and sectional views giving details of assemblies shall be provided, as necessary, to clarify the test. For mechanical items, dimensional information with tolerances, clearances, wear limits, maximum bolt-down torques, and in-place balancing or other means of reducing noise level, if required, shall be supplied. Requirements for cleaning and lubrication prior to reassembly shall be included, if critical. Information on the use of special tools and test equipment supplied with the equipment, as well as any cautions or warnings which must be observed to protect personnel and equipment, shall also be included.

1.5.3.8 Notes, Cautions, and Warnings

Notes, cautions, and warnings shall be used to emphasize important and critical instructions where necessary. Notes, cautions, and warnings shall immediately precede the applicable instructions and shall be selected as follows:

- NOTE - concerns an operating procedure or condition which should be highlighted.
- CAUTION - concerns an operating procedure or practice, which if not strictly observed, could result in damage to, or destruction of equipment.
- WARNING - concerns an operating procedure or practice, which if not strictly observed, could result in a hazard to health, injury to personnel, or loss of life.

1.5.3.9 Parts List

Parts lists shall provide positive identification of parts necessary for maintenance support of the systems or equipment and shall include a complete list of parts and supplies, with current unit prices and source of supply, and sufficient information to enable maintenance personnel to requisition replacement parts. Parts lists shall also include a list of parts recommended by the manufacturer to be replaced after one and three year(s) of service.

a. Systems or Top Assembly Lists

The parts list for a system shall identify all parts necessary to accomplish system operations that are not already included (listed) with subsystem or equipment lists. Such parts to be listed would include, but not be limited to, such items as cable, pipe, flanges, feed-through devices for cables, connection or junction boxes, connection devices, and distribution panels.

b. Parts List Illustrations

Clear and legible illustrations are to identify component parts and parts relationships. Part numbers and part names may be shown on illustrations or separately listed. When the illustrations omit the part numbers and part names, both the illustrations and separate listings shall cross-reference illustrated part to listed part. Parts in the listing shall be grouped by systems, subsystems, and components.

1.5.3.10 Pollution Control

All pertinent pollution control information shall be included. The information may be in the form of operating instructions, maintenance instructions, or both, for prevention or correction of pollution.

1.5.4 Format

1.5.4.1 General Arrangement of Data

The data may be grouped by system, function, or location within the facility, and the order of arrangement shall be consistent throughout the manual. Final determination of the arrangement of data shall be subject to approval of the Contracting Officer.

1.5.4.2 Illustrations

Manuals shall contain illustrations, drawings, or photographs necessary to locate and identify components of operational and maintenance significance. Where necessary for clarity, illustrations shall show configuration and the removal and disassembly of parts. The following shall be included: schematic diagrams which show the arrangement of component devices or parts; wiring diagrams which show the connections of the circuit arrangement; one-line diagrams of electrical power distribution systems and communications type systems; functional or block diagrams; and schematic piping diagrams which show the interconnection of components, of piping, tubing, or hose, and the direction and sequence of fluid flow, drawings, and photographs.

1.5.4.3 Warning Page

A warning page, consisting of the more vital warnings extracted from those shown throughout the manual, shall be used when care must be exercised in areas of potential danger, such as high voltage, radioactive material, toxic chemicals, flammable liquids, explosive materials, carcinogens, or high

pressures. The warning page shall be placed on the inside cover or in front of the initial pages(s) of the manual.

1.5.5 Writing Style

The writing style should be readily comprehensible to an apprentice level craftsman. Apprentice level craftsman is defined as having a high school diploma, with minimal experience in operating similar equipment.

1.6 OPERATION AND MAINTENANCE CLASSIFICATIONS - DEFINITIONS AND REQUIREMENTS

The type and extent of O&M treatment to be provided will vary in accordance with the type of equipment and materials involved. To facilitate this approach, three classifications have been established for O&M data. Definitions, requirements, and specific equipment and materials for each classification are listed below.

1.6.1 Definition of Classifications

1.6.1.1 Classification 1

Classification 1 includes complex systems involving inter-actions of many smaller components, devices, assemblies, or subsystems (typically, equipment of several manufacturers is provided).

1.6.1.2 Classification 2

Classification 2 includes single items or packages that are important to facility operation due to size, function, or complexity (typically, equipment is from a single manufacturer).

1.6.1.3 Classification 3

Classification 3 includes miscellaneous conventional equipment or materials for which abbreviated O&M instructions would be suitable.

1.6.2 Requirements

1.6.2.1 Classifications 1 and 2

Comprehensive manuals shall cover all significant aspects of operation, maintenance and field level repair (startup, shutdown, sequence of operation, corrective maintenance, preventive maintenance, diagnosis, trouble-shooting, and testing). Provide narrative, illustrations, diagrams, parts catalogs or lists including all GA data submittals required by all applicable specification sections. Material from manufacturers may be incorporated; however, the following shall be avoided: generic material applicable to a wide range of models, most of which is applicable; wide variance in format and scope among various manufacturers; and lack of information on accessories, optional packages or special order items. Manuals shall be consistent in format and scope throughout and tailored to reflect the actual equipment configurations furnished for the facilities.

1.6.2.2 Classification 1

This classification will require extra attention to insure that the finished manual exhibits a system approach. Each subsystem or component shall be considered relative to its relationship to the overall system. Relying solely on material from various manufacturers will tend to produce a sketchy, patchwork treatment. New material shall be developed as necessary to provide a consistent, balanced and complete treatment.

1.6.2.3 Classification 3

Detailed O&M manuals will normally not be required, instead furnish information such as parts lists, operating recommendations, trouble-shooting tips, preventive maintenance checklists, adjustment, or similar data that would improve efficiency, save energy, extend useful life, insure safety, increase reliability, etc:

1.6.3 Equipment and Material Breakdown (by Classification and Trade)

The following lists are not intended to be absolute or complete breakdowns. If improved useability would be achieved, some items could be split up or combined. The Classification 3 items, especially, could be modified. The descriptive material that follows some of the Classification items represents the type of O & M coverage considered appropriate for Classification 3 level equipment. It is not intended to limit scope. The Contractor shall expand or modify to best serve the Using Service's needs.

1.6.3.1 Mechanical

a. Classification 1.

- (1) Fire Protection Sprinkler Systems
- (2) Hot Water Heating System
- (3) Related Control Items
- (4) Air Handling Unit Systems
- (5) Ventilation and Exhaust Systems

b. Classification 2.

- (1) Gas Distribution System
- (2) Seismic Protection for Mechanical Equipment
- (3) Plumbing System
- (4) Gas Piping System

c. Classification 3.

- (1) Water Heaters
- (2) Backflow Preventors
- (3) Unit Heaters
- (4) Plumbing Fixtures
- (5) Water Coolers

1.6.3.2 Electrical

a. Classification 1.

- (1) Fire Detection and Alarm System
- (2) Security System

b. Classification 2.

- (1) Switchboard
- (2) Interior and Exterior Lighting
- (3) Voice/Data Prewiring System
- (4) Motor Control Centers
- (5) Cathodic Protection Equipment
- (6) Lightning Protection System
- (7) Seismic Protection for Electrical Equipment
- (8) Radio and Public Address System

c. Classification 3.

- (1) Panelboards
- (2) Dry Type Transformers
- (3) Lighting Contractor

1.7 SUPPLEMENTARY INFORMATION

The O&M manuals are not intended to be training manuals for individuals lacking any technical background or experience. If in some cases, where instruction in theory or practices is considered essential, it is preferred that references be made to published manuals, texts, or audio-visual materials rather than adding extensive text to the body of the O&M manual. If there is no suitable reference, instructional material could be developed and included as an appendix. The Contractor shall provide video taping of all equipment training (VHS Format).

1.8 OPERATION AND MAINTENANCE TRAINING COURSE AND MANUALS

1.8.1 General

The Contractor shall prepare and conduct a on-site training course for designated personnel in the operation and maintenance of all Classification 1 and 2 systems as specified above. The course shall be taught at the site for a period of 40 hours. A maximum of 10 personnel will attend this course. The Contractor shall be responsible for furnishing all audiovisual equipment and all other training materials and supplies. A training day is defined as eight hours of instruction, including two 15-minute breaks and excluding lunchtime, Monday through Friday, during the daytime shift in effect at the facility. The Contractor shall submit an outline for the course, with a proposed time schedule. Approval of the planned training schedule shall be obtained from the Government at least 15 days prior to the start of training.

1.8.2 Training Course Content

Provide all necessary manuals, aids and equipment required to conduct the

training. Training literature shall include a 95 percent draft copy of both the Operations and Maintenance Manuals and the final corrected drawings. Any deficiencies in these documents noted during the training phase, shall be corrected prior to submitting them to the Government in the final form.

For guidance in planning the required instruction, the Contractor should assume that attendees will have a high school education or equivalent, and are familiar with HVAC systems. The training course shall cover all of the items contained in the operating and maintenance manuals. Typical systems and similar systems may be treated as a group, with instruction of one such system. The results of the DCS performance verification test and the calibration, adjustment and commissioning report shall be presented as benchmarks of HVAC control-system performance by which to measure operation and maintenance effectiveness.

Training manuals shall be delivered for each trainee with two additional copies delivered for archives at the project site. The manuals shall include an agenda, defined objectives for each lesson, and a detailed description of the subject matter for each lesson. Where the Contractor presents portions of the course material by audiovisuals, copies of those audiovisuals shall be delivered to the Government either as a part of the printed training manuals or on the same media as that used during the training sessions. Two copies of audiovisual materials shall be delivered for archival storage at the project site, either as a part of the printed training manuals or on the same media as that to be used during the training session.

1.8.3 Familiarization Training.

Instructions shall be given to the operating personnel to familiarize them with the general operation of the installed, operating, equipment. Checklists identified in Section 15995 COMMISSIONING OF HVAC SYSTEMS have been completed and equipment is operating and balanced, but before the Functional Performance T have been started. Training shall take place in the mechanical space where equipment is located, with hands-on demonstrations of rudimentary operation of the system. The people who will do the training shall be the contractor installed the equipment; and in the case of HVAC equipment, the balancing contractor shall also participate in the training. It is not expected that the equipment or systems in the building will be the same stages of completion at the same time; consequently, several training sessions may need to be scheduled so that all systems are included in the training sessions.

1.8.4 Operator Training

Operator training shall be conducted primarily the classroom, with some hands-on time spent on location. These training sessions shall provide extensive training in operation and maintenance of all systems in the new construction, and impacts that the new systems will have upon existing systems. Those who con the training session shall be totally familiar with each system and with peculiarities in the installed construction. The group of instructors s include representative personnel from all the contractors involved in installation and commissioning of the system. In the case of

HVAC systems, classroom discourse shall include a complete, detailed sequence of controls, written with each component number and name in the sequences, as identified on the drawings. The dual identification s needed so that personnel can easily follow the sequence without loss of comprehension, which occurs when only of the components' identifying name/number is called out. Copies of sequence shall be given to personnel in the training class so that they follow the instructor. The sessions on the sequence of operation is a prerequisite to the training required for the DCS Control System.

1.8.5 Video Taping

The Contractor shall provide video taping of all operation and maintenance training in (VHS) format. All tapes shall be labelled as to the contents of tape.

1.9 FACTORY LEVEL OPERATION AND MAINTENANCE

It is expected that there will be some maintenance, repair, or opera procedures which will not be feasible to perform in the field due to econ considerations, experience or training of field O&M personnel, lack of specialized tools or instrumentation. Manuals shall designate the level of expertise required for the more complex O&M work and identify any support equip required beyond the usual items available to the Using Service.

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